SELF-SCHEMAS AND SOCIAL-SCHEMAS FOR MEMORY IN ADULTHOOD

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ABSTRACT

The relationship between adults' beliefs about the nature of human memory across the adult lifespan, and beliefs and attitudes about their own everyday memory functioning, was investigated in two questionnaire-based studies. In Study One, seventy-seven young (ages 18-36) and one hundred and seven old (ages 55-82) adults rated young and old targets committing an identical assortment of briefly-described everyday memory behaviours. Subjects provided measures of affect and subjective well-being, estimated their own frequency of everyday forgetting, and indicated how generally satisfied they were with their own everyday memory functioning. Both subject groups expressed similar age-stereotypes about memory. Older targets were rated as more forgetful than young targets, and isolated memory behaviours in older targets were also seen as more indicative of general memory functioning. Old and young subjects displayed equivalent moderate satisfaction with their own everyday memory, despite significantly greater self-reported forgetting in younger subjects. Memory self-report was generally unrelated to ratings of the generalizability of targets' memory behaviours.

In Study Two, a separate group of eighty-four older adults (ages 55-84) provided similar measures, rated their own memory functioning on a number of additional dimensions drawn from several established metamemory instruments, and provided measures of more general perceptions about aging, and general life satisfaction. Adults' dissatisfaction with their own memory functioning was most noticeably associated with self-perceptions of memory decline, but appeared to be moderated by their beliefs about memory change in adulthood, such as expectations of memory decline, and beliefs about the trait-like nature and controllability of memory. Individuals least satisfied with their memory were those who saw age-related memory decline as relatively substantial and inevitable. In turn, expectations about age-related memory decline in the populace were predictive of how much individuals felt their own memory had declined.

Although satisfaction with own memory was strongly associated with self-ratings of current everyday memory functioning, current self-ratings demonstrated little predictive value when affect and subjective well-being, indices of individuals' implicit

theories about aging and memory, and self-rated decline in memory, were statistically controlled. Path analysis suggested a number of potential indirect effects of age-stereotypes on memory self-evaluation. The results are discussed in terms of the role of implicit theories in retrospective self-evaluation, and discrepancy-based theories of satisfaction.

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Chapter One

Introduction

How much do people really know about themselves, and how much of that self-knowledge is accurate? Such a broad question is perhaps more in line with popular psychology than with mainstream academic psychology. However, the subject of self-knowledge and self-conceptions, and the way in which individuals acquire it, has become an important one in social psychology, (Bem, 1972; Markus & Wurf, 1987). The work of Markus, and others (Markus & Wurf, 1987) has indicated that the subject of self-knowledge is interesting not only in terms of how individuals may acquire or construct it, but in terms of how they deploy it. Organized constructs about the self, or "self-schemas" (Markus, 1977), may serve as filters for the acquisition of information, directing attention in subsequent observation of the self (Markus & Wurf, 1987) and others (Fong & Markus, 1982). Schema-like beliefs held about one's own capabilities also appear to play a role in determining the types of activities that individuals choose to engage in, how much effort they exert in any activities they engage in, or the degree to which they seek to derive useful, tactical knowledge from the activities they participate in (Bandura, 1977; 1989).

In contrast to more common-sense notions, contemporary theorists have proposed that much of what individuals profess to know about themselves stems not from direct knowledge of the self, but from inferences made about self-observed instances of one's own behaviour (Bem, 1972). In a sense, much of what we think we know about ourselves consists of our own explanation of our behaviour *to* ourselves. This is well-illustrated by the tendency of individuals' to perceive their own motives or mental processes in terms of what they feel is plausible (Nisbett & Wilson, 1977).

Both traditional (e.g., Festinger, 1954), and more recent (Ross, 1989) views, suggest that inferences made about the self tend to incorporate information of what individuals know or believe about others, in addition to what they have observed in themselves. For example, social comparison theory (Festinger, 1954) proposes that individuals arrive at evaluations of their own characteristics and abilities via comparisons of self against a reference group perceived as relevant to the dimension of self under consideration.

More contemporary views of social cognition (Dweck, 1986; Ross, 1989) propose that inferences made about the self may also be influenced by individuals' naive or "implicit" theories of human behaviour. Individuals may make inferences about their own competencies or traits, guided by theory-like assumptions about the kinds of characteristics, or motives, that individuals like themselves might plausibly possess in similar circumstances. Individuals may also nest those naive theories of human behaviour within a broader implicit theory of human development. These broader theories, in turn, mediate the inferences people make about their own longitudinal stability and malleability in those characteristics (McFarland, Ross, & Giltrow, 1992; Ross, 1989). In a sense, individuals may go well beyond the empirical information obtained from self-observation, when acquiring self-knowledge, and construct ideas about themselves as developing individuals in a manner that may provide some sort of coherent personal narrative to themselves, or reflect some set of emerging personal constructs (Viney, 1992), rather than making simple objective inferences about themselves.

Clearly, no single model of self-knowledge construction may be uniformly applied to the first two decades of life. Some writers (Suls & Mullen, 1984; Viney, 1992) suggest that it may be appropriate to consider the basis of self-knowledge as shifting over adulthood as well. The notion is that self-knowledge continues to change over the entire lifespan, not only in terms of content, but in terms of the processes underlying its' acquisition, such as its' reference points (Suls & Mullen, 1984), the forms of modal logic available to individuals (Viney, 1992), and the psychological models individuals hold and apply at different points in the lifespan (Ross, 1989). Depending on the kinds of reference points employed by the individual, and the intuitive models of human behaviour they apply, the kinds of inferences that individuals make about their personal characteristics may evidence quantitive or qualitative change despite real stability, or subjective stability despite real change.

For example, by comparing themselves against a schematic view of how poor their health *might* be at their age, older adults' subjective health ratings tend to remain reasonably high across adulthood, despite the fact that objective symptomatology, and

other physical health indices (e.g., medicine use), increase with age (Cockerham, Sharp, & Wilcox, 1983; Heidrich & Ryff, 1993). Heckhausen and Krueger (1993) suggest that such comparison of self against an exaggerated stereotype of age-mates may be actively deployed by older adults to preserve a positive self-view in the face of real decline. As illustrated in this example, the use of negative stereotypes of one's social comparison group in such a manner may constitute an influence on self-knowledge construction which is not similarly available to younger persons (because they may not hold negative stereotypes about that social comparison group), or similarly used by them (because they may enhance self-esteem by seeing themselves as more, rather than less, like their peers).

There is obviously tremendous potential for individuals to make erroneous inferences about themselves. However, as illustrated in the case of subjective health, the accuracy of such inferences may sometimes be orthogonal to their degree of personal benefit. Indeed, as Bandura (1989) has pointed out, effective action may sometimes be fostered more by unrealistic beliefs about the self than by realistic ones. Given the implications of self-inferences made by going beyond the actual empirical information at hand, it is important to understand how the acquisition of self-knowledge may occur across the lifespan, whether in a general, or domain-wise, fashion. The dissertation is directed at understanding individual and adult-age differences in the processes underlying one particular domain of self-knowledge: adults' conceptions of their own memory. In particular, the dissertation examines adults' beliefs about their own memory by application of contemporary social-cognitive models of self-knowledge and self-inference.

The Basic Phenomenon

As a group, older adults tend to demonstrate poorer laboratory memory performance than younger adults, across a variety of domains and modes of evaluation (Craik, 1977; Hultsch & Dixon, 1990; Poon 1985). Although a significant proportion of elderly adults depict themselves as having some difficulty with their memory (Cutler & Grams, 1988; Herzog & Rodgers, 1989; Lowenthal, et al., 1967), empirical studies rarely find strong concordance between ostensibly reliable and valid measures of memory self-report and actual memory functioning in ostensibly representative samples of normal

elderly (Dixon, 1989; Gilewski & Zelinski, 1986). So while older adults' memory self-report often reflects the performance *of their age group*, it has been considerably less reflective of their performance *as individuals*.

The all-too-typical finding of 10% or less common variance between what older adults say about their own memory, and how they actually perform (Dixon, 1989; Crook & Larrabee, 1990) has traditionally been treated in terms of debate over the validity and psychometric characteristics of either the memory performance or self-report measures (Gilewski & Zelinski, 1986). The emphasis on the measures themselves, however, assumes that normal adults have objective insight into their own memory behaviour, and can report it accurately, given psychometrically sound indices of memory self-evaluation, and ecologically valid indices of everyday memory functioning.

More recent discussion has focused on the possibility that individuals' beliefs about their memory may also be drawn from sources of information *beyond* their own actual everyday memory performance (Cavanaugh, 1987; Ryan, 1992), such as social stereotypes or "schemas" about what happens to memory with age. Comparatively little research has systematically examined the relationship between what adults profess about their own memory, and what they profess about memory in others.

Focus of the Dissertation Research

The studies reported in the dissertation provide an initial foray into the investigation of this relationship. The approach adopted here is that what adults say about their memory in questionnaires - such as their beliefs about their current memory functioning, how they think it may have changed over the years, how they think their own memory operates, or their sense of competence or effectiveness as rememberers - may be fruitfully considered as a type of multi-dimensional self-knowledge. Such self-knowledge is assumed to be derived from multiple sources, including (but not restricted to) observation of own performance. In turn, whatever adults notice about their everyday remembering and forgetting, or receive comment on by others (Ruisel, 1985) is treated here as being interpreted by them within the context of the culturally-influenced theories of human cognitive development and aging that they hold. These culturally-influenced

beliefs are hypothesized to have a somewhat different impact on what young and old may believe and express about their memory.

To this end, two studies are reported here in which adults' expressed beliefs about aging and memory, and their expressed beliefs and attitudes about their memory, are considered in relation to each other. The first study examines several aspects of younger and older adults' age-stereotypes of everyday memory functioning. The second study examines the interrelationship between older adults' general beliefs about aging, beliefs about age-related memory changes in themselves and others, and self-assessment of their memory functioning. One of the focal points of both studies is the relationship between what adults expect for people like themselves, in terms of everyday memory, and whether they are generally content or happy with their memory.

Chapter Two

Metamemory and Aging

The importance of understanding what adults tell us about their memory is partially predicated on the assumption that individuals' knowledge about memory may mediate their actual memory performance, an assumption long-held in the area of children's memory development. This chapter briefly reviews the literature on children's and adults' knowledge and beliefs about memory, as well as current conceptions of the putative relationship between knowledge and beliefs about memory, and memory performance. The typical types of materials and empirical findings in studies of adults' beliefs about their own memory are also reviewed, followed by an examination of the literature on adults' perceptions about the nature of memory in different aged individuals, including themselves.

Self-Knowledge in the Memory Domain

Beginning in the late 1960's, and continuing into the 1970's, it became increasingly apparent to developmental researchers that improvement in children's performance on memory tasks was generally paralleled by their declarative knowledge about memory. Flavell (1971) referred to this knowledge, and its use, as "*meta*memory", since he viewed memory as improving with age as children began to go *beyond* the bare minimum required for incidental learning and retrieval. In Flavell's view, eventual adult memorial competence reflected the application of accruing knowledge about one's own cognition (and human cognition in general), and an increasing intentionality and goal-orientation toward remembering.

For the most part, this assumption of the child's emerging insight into memory as integral to memory development has continued until the present. Some authors have suggested that there is little evidence to compel the view that metamemory knowledge is necessarily a *causal* factor in performance (Cavanaugh & Perlmutter, 1982), whereas others have suggested that even if it is potentially causal, it may not necessarily be central to developmental changes in memory (Chi, 1985). However, there is substantial evidence that what children can tell us about their own memory, and the mechanics of

remembering, is at least *reflective* of the degree of cognitive maturity and corresponding performance in children and adolescents (Kreutzer, Leonard, & Flavell, 1975; Waters, 1982).

It is important to note that such early approaches to knowledge about memory generally came from a largely cognitive perspective. To the extent that the metamemory construct was being explored for what it could reveal about normal memory development, there was little interest expressed in how the individual's knowledge about memory and cognition interacted with their knowledge in other domains, especially the social domain. Little attention was given to the affective domain; how children felt about their memory, or reacted to success and failure. Flavell (1979) acknowledged conscious experience and on-line reactions to memory performance as important, but treated them more in terms of what they told the rememberer about self as a variable in the process of remembering, rather than what they said about the self as social being (e.g., how self-perceptions of forgetting might influence self-esteem), or what impact they might have on motivation or affect.

More recently, other writers (Dweck, 1986; Paris & Cross, 1983), have turned their attention towards integrating children's knowledge about cognition per se with their beliefs in the social domain (e.g., beliefs about the controllability of an individual's cognitive performance). In general, this direction has been guided by a desire to explain poor school performance among underachieving schoolchildren (Dweck, 1986). However, it has led to an increased awareness of the interface between cognitive performance, affect, and motivation, and the putative role of beliefs about the self in mediating these behaviours (Dweck & Leggett, 1988). The notion is that while level of cognitive performance may stem from the active deployment of tactical metamemory knowledge, this knowledge is modified, and utilized, on the basis of the individual's experiences, their affective response to such instances, their general beliefs about themselves, and their emerging naive theories about their own cognition. What children *feel* and *believe* about their own memory, or some other aspect of their cognition, is treated as increasingly equal in importance to what they may know about the

technicalities of how memory functions or what different tasks demand of them (Dweck, 1986; Paris & Cross, 1983).

Metamemory in Adults

A similar evolution in thinking has occurred in the adult cognition literature. Beginning in the late 1970's, investigators began considering older adults' spontaneous memory behaviour (and resulting performance) as related to some sort of metamemorial flaw, in which their knowledge about memory is deficient in some manner (Light, 1991). Seminal to this approach, was the frequent finding that older adults fail to spontaneously employ effective memory strategies (Craik, 1977), but show improvement in laboratory memory performance when use of task-appropriate strategies is trained or encouraged (Hultsch & Dixon, 1990). Such findings suggested that, for any of a number of reasons, older adults may either not have, or not spontaneously retrieve, the requisite strategic knowledge for effective performance. For example, adults may possess, but not apply, useful metamemory knowledge to school-like laboratory tasks if they have been out of school for several decades (Zivian & Darjes, 1983).

A number of authors (e.g., Rabinowitz, Ackerman, Craik, & Hinchley, 1982; Salthouse, 1982) have rejected adult age differences in metamemorial knowledge as a potential explanation of age-differences in memory performance, noting that adults' knowledge about the "mechanics" of memory (i.e., their declarative knowledge about what it takes to remember in different contexts and tasks) is largely no different than that of the younger adults who consistently outperform them on memory tasks. Reviews of published reports (Devolder & Pressley, 1989; Light, 1991), have generally supported this particular interpretation.

Although the link between adults' awareness of how their memory works, and their actual memory performance, still awaits compelling support (Light, 1991), more recent papers (Berry, 1989; Elliot & Lachman, 1988; Hultsch, Hertzog, Dixon, & Davidson, 1988) have suggested a broader conceptualization of the relationship between adults' performance and what they can tell us about their memory. Similar to the child metamemory literature, focus has shifted away from exclusive consideration of more

objective knowledge about memory tasks and strategies, towards including what adults of different ages feel and believe about their memory (Berry, 1989; Cavanaugh & Green, 1990; Hertzog, et al., 1990a).

As in the case of the child literature, this shift in orientation has been partially driven by practical concerns. Some of the earliest reports (e.g., Kahn, Zarit, Hilbert, & Niederehe, 1975) were prompted by an interest in understanding older adults' spontaneous memory complaints, and continue to be prompted by such concerns (Bolla, Lindgren, Bonaccorsy, & Bleecker, 1991; Christenson, 1991; Niederehe & Yoder, 1989; Taylor, Miller, & Tinklenberg, 1992). Many of the questionnaire methods devised for examining adult metamemory have often been devised for, or applied towards, clinical screening or assessment of memory functioning and memory complaints in seniors (Gilewski & Zelinski, 1986). Beyond concerns about the validity of complaints, and non-cognitive predictors of complaint, such as depression (O'Hara, Hinrichs, Kohout, Wallace & Lemke, 1986), or hypochondriasis (Brink, 1981), there is growing interest in understanding just exactly who is likely to voice a complaint about their memory (Cutler & Grams, 1988; Niederehe & Yoder, 1989).

Interest in the nature of beliefs about memory has also increased partly out of methodological concerns. After some fifteen years of investigating adult metamemory using questionnaires, it is apparent that metamemory measures are only modestly correlated with adult cognitive performance (Crook & Larrabee, 1990; Dixon, 1989; Dixon & Hultsch, 1983; Gilewski, et al., 1990). Some have suggested that such modest relationships may stem from discrepancies in the domains addressed by typical laboratory memory tasks, and the everyday domains addressed by questionnaires (Hultsch, Dixon, & Hertzog, 1986). Others have suggested that old and young may not approach metamemory questionnaires similarly (Zelinski, Gilewski, & Thompson, 1980), or that the memory constructs addressed by such questionnaires may not be isomorphic with subjects' personal constructs of memory (Dobbs & Rule, 1987). Still others have suggested that affective status may have a differential influence on the memory self-report

of younger and older adults (White & Cunningham, 1984), resulting in a different relationship between self-report and performance for different age groups.

Beyond clinical or methodological concerns, a number of researchers have been persuaded that a true understanding of adult age differences in cognition, requires a broader perspective, and more complex model, encompassing the interface between cognitively-oriented domains of metamemory knowledge, and more social domains, such as knowledge and beliefs about the self and about aging (Cavanaugh & Green, 1990; Hultsch, et al., 1988). As Hultsch, et al., (1988) note in their discussion of adult metamemory, "...it is becoming increasingly clear that cognitive processes do not operate in isolation from personality and social processes." (p.88).

One of the more pervasive arguments for examining adults' beliefs about their memory is that, even where different individuals possess identical strategic knowledge about a problem domain (e.g., remembering text), organization and effective deployment of such knowledge may ultimately depend on the individual's beliefs about the utility of that strategy for themselves as rememberers (Cavanaugh & Green, 1990; Elliot & Lachman, 1988; Hertzog, et al., 1990a). Bandura (1989) suggests that beliefs about the self (such as beliefs about one's memory) may mediate cognitive performance in a number of ways. Individuals who perceive themselves as less competent in some domain may engage in less mental rehearsal and real practice of effective strategies, less *a priori* analysis of problems, be less persistent, and be more susceptible to affect which interferes with performance. Elliot and Lachman (1988) have applied such a view to older adults, proposing that some elderly may believe there is little point in attempting to use or practice strategies *because* they are old, and some empirical support has been obtained for this view (Devolder & Pressley, 1992), however there is little or no empirical data examining adults' expressed beliefs about the utility of specific strategies and evidence that they do or don't use those strategies.

To the extent that adult age differences in cognitive performance are generally more robust in the case of tasks requiring deliberate, effortful processing, rather than unconscious, automatic processing (Light, 1991), this approach to explaining adult

cognition is not inconsistent with the general facts of adult cognition. Ultimately, the processing strategies employed by, and processing resources available to, the rememberer determine how effectively information is encoded and retrieved. However, many questions remain about how strategies become activated (or remain inactive), and whether non-cognitive factors, such as beliefs about memory and self, play a role in their activation, which may ultimately result in age differences in cognitive performance. As a result of these various concerns, there is increasing interest in the social cognitive processes underlying how people approach the questionnaires employed in such research (Cavanaugh, Feldman, & Hertzog, 1993; Dixon, 1989).

Although there appears to be emerging concensus on the importance of the social-cognitive side of individuals beliefs about their memory, much of the initial and ongoing debate has been directed at determining whether or how metamemory mediates performance, with comparatively little consideration of what mediates metamemory knowledge *itself*. Cavanaugh (1987) has suggested that the responses people make on metamemory inventories are likely the result of self-evaluation processes which we presently understand little about, and whose subjective data-base (i.e., what the subject is thinking about at the time of evaluation) is largely unspecified. Some investigators (Cornelius & Caspi, 1986; Grover & Hertzog, 1991; Lachman, 1983) have examined the direction of the relationship between individuals' beliefs about general intellectual aging, and their own cognitive performance, but there has been little investigation into how individuals arrive at the beliefs they express on the typical metamemory questionnaire.

Common Features of Metamemory Instruments

Studies of metamemory in adulthood have tended to opt for one of two basic methodologies: questionnaire studies (e.g., Crook & Larrabee, 1990; Dixon & Hultsch, 1983; Gilewski, et al., 1990), and studies in which individuals make predictions about performance on to-be-attempted or recently-attempted memory tasks (e.g.; Bruce, Coyne & Botwinick, 1982; Hertzog, et al., 1990b; Lovelace & Marsh, 1985; Murphy, Sanders, Gabriesheski, & Schmitt, 1981; Rabinowitz, et al., 1982). The majority of these studies have employed questionnaire methods to inquire about subjects' declared beliefs about

their own memory (Gilewski & Zelinski, 1986; Herrmann, 1982). Some of the earliest studies (Dixon & Hultsch, 1983; Herrmann & Neisser, 1978; Niederehe, 1981, cited in Gilewski & Zelinski, 1986; Perlmutter, 1978; Sehulster, 1982; Zelinski, Gilewski, & Thompson, 1980) employed sizeable questionnaires in an attempt to map out the various subjective dimensions of adult metamemory. Gilewski and Zelinski (1986) and Herrmann (1982) have summarized most of these instruments.

A number of themes can be found among the various questionnaires used. Common ones are: perceptions of general and domain-specific memory capability, perceptions of memory problems, perceptions about level of memory functioning in specific domains or contexts, absolute or relative estimates of everyday forgetting, personal reaction to memory lapses or success, perceptions of recent and long-term change in memory functioning, knowledge about memory strategies and memory task demands, beliefs about the controllability of memory decline, and knowledge about the demands of various everyday memory tasks and the kinds of memory strategies one might employ (Dixon, 1989; Gilewski & Zelinski, 1986). To the extent that much of the metamemory literature has been directed towards the correspondance between adults' memory beliefs and their actual performance (Light, 1991), or towards detection of clinical changes (Gilewski & Zelinski, 1986) the majority of studies have employed measures that address, in one manner or another, adults' current or retrospective assessment of their level of memory performance.

Several studies have employed multiple metamemory questionnaires to discern both the relative and convergent validity of such instruments, as well as underlying common factors. In general, the various measures of self-rated memory capability, and change in capability, appear to converge on similar constructs (Hertzog, et al., 1989). Cavanaugh and Poon (1989) observed that the Herrmann and Neisser (1978) Short Inventory of Memory Experiences (SIME) correlated significantly with the Capacity scale of the Dixon and Hultsch (1983) Metamemory in Adulthood (MIA) instrument. The SIME requests judgments of relative frequency of problems in various everyday memory domains (from "always" to "never"), whereas the MIA-Capacity scale asks subjects to

agree or disagree with seventeen statements about their memory performance and capability in various everyday domains. A similar correspondance between the MIA-Capacity scale and several frequency-of-forgetting scales included in Zelinski, Gilewski, and Thompson's Memory Functioning Questionnaire (MFQ; 1980) was also observed by Hertzog, et al., (1989). Finally, Johnson and Anderson (1988) reported that the SIME, Riege's (1983) Memory Self-Report (MSR) instrument, and several scales of the MFQ, loaded on common factors addressing frequency-of-forgetting in several domains. The SIME and MSR are comparatively short instruments, relatively narrow in scope, and scored in a similar manner (relative frequency-of-forgetting in an assortment of everyday contexts).

Hertzog, et al., (1989) examined the degree of overall convergence of two of the more extensive metamemory inventories - the MIA and MFQ - and found robust correlations between the MIA and MFQ scales that examined self-rated memory capability and self-rated memory change. Upon subsequent factor analysis, they noted that scale scores from the two metamemory questionnaires converged on an underlying factor of what they termed "memory self-efficacy", consisting primarily of self-ratings of current performance, change in own performance with age, and to a lesser extent, reactions to forgetting. The self-efficacy factor was relatively distinct from a second "memory knowledge" factor, consisting of the more traditional types of metamemory content explored by child development researchers: knowledge about task demands, knowledge about strategies, etc.

The term "self-efficacy" (Bandura, 1977; 1989) is generally used to describe an individual's sense that they can perform designated tasks effectively or successfully. In this case, the category of tasks is remembering. The term "memory self-efficacy" has also been used by other authors (Berry, West, & Dennehey, 1989) to refer to specific types of memory self-ratings, in which individuals evaluate the likelihood of their own successful performance in each of a variety of everyday and laboratory domains, and levels of difficulty within those domains. These ratings ostensibly tap the same underlying construct as other types of self-assessment, hence the term "self-efficacy" will

be used in a broader sense here, to refer to Hertzog, et al.'s (1989) more general construct of memory self-efficacy, incorporating beliefs about degree of, and changes in, capability, as well as feelings about memory performance.

Hertzog, et al. (1990a) have proposed that many of the ostensibly different types of self-ratings, obtained in metamemory questionnaires, may be based on individuals' underlying sense of memory self-efficacy. These would include estimates of frequency-of-forgetting (Chaffin & Herrmann, 1983; Sunderland, Harris, & Baddeley, 1983), frequency of memory problems (Cutler & Grams, 1988; Zelinski, et al, 1980), judgments of seriousness of memory difficulties (Zelinski, et al., 1980), judgments of overall memory capability (Zelinski, et al., 1980) and domain-specific memory capability (Dixon & Hultsch, 1983), and judgments of change in memory functioning (Dixon & Hultsch, 1983; Zelinski, et al., 1980), etc. Additionally, other types of specific self-evaluations, such as performance predictions (Hertzog, Dixon, & Hultsch, 1990b; Lovelace & Marsh, 1985), or post hoc estimates of success (Rabinowitz, et al., 1982), may also be based partly on individuals' more general beliefs about their own effectiveness at remembering.

Common Metamemory Findings

By far the most consistent age patterns observed in the literature are age-related increases in the description of memory as poor or problematic (Cavanaugh & Poon, 1989; Cutler & Grams, 1988; Dixon & Hultsch, 1983; Herzog & Rodgers, 1989; & Crook & Larrabee, 1990), and age-related increase in the description of memory as declining (Cavanaugh, 1987; Dixon & Hultsch, 1983; Hertzog, et al., 1989; Gilewski, Zelinski, & Schaie, 1990). A number of reports (e.g., Cavanaugh & Poon, 1989; Dixon & Hultsch, 1983) have also noted age-related decreases in the perception of memory as controllable or modifiable. There is little empirical evidence that knowledge of memory strategies or task demands is systematically related to adult subject age (DeVolder & Pressley, 1989; Light, 1991). Hertzog, et al., (1990a), and Gilewski, et al., (1990) both note that expressed knowledge about the mechanics of memory (strategy knowledge and use, knowledge of task demands), is also generally unrelated to adults' beliefs about memory capability, severity of problems, and decline. Dixon and Hultsch (1983) noted

that, among the basic factor-derived scales included in their MIA instrument, perception of memory decline was more strongly associated with subject age than any of the other scales. This association has been maintained over the course of several subsequent studies (Cavanaugh, 1987; Cavanaugh & Poon, 1989; Hultsch, Hertzog, Dixon, & Davidson, 1988), however other reports (Crook & Larrabee, 1990; Gilewski, et al., 1990; Niederehe & Yoder, 1989) have found only a relatively weak association, or no association at all.

Niederehe and Yoder (1989) failed to find a significant age difference in self-reported change, using Niederehe's Metamemory Questionnaire (MMQ). It is worth noting that the MMQ contains fewer items pertaining to perceived change than the MIA (6 items, compared to 18 in the MIA), and, unlike the MIA and MFQ, does not refer to any particular time frame for self-rated memory change. Niederehe and Yoder's study also lacked the sample size (hence, statistical power) of those studies mentioned in Hultsch, et al., (1988). No published data currently exist examining the correspondance between Niederehe's MMQ scales, and scales from other instruments which examine similar constructs. Consequently, at this time, it is unclear whether Niederehe and Yoder's data contradict those reported by Hultsch, et al., (1988), address a different underlying construct, or whether their sample size lacked the power to detect similar age differences.

Crook and Larrabee (1990) employed a much larger sample ($n=1106$). Although subject age and self-rated change in memory functioning correlated significantly, the relationship was considerably weaker than that described by Hultsch, et al., (1988). Where Dixon and Hultsch (1983) report subject age accounting for over thirty-seven per cent of the variance in self-rated change, Crook and Larrabee (1990) report age accounting for just over one per cent. Crook and Larrabee have demonstrated the validity of their MAC-S (Memory Assessment Clinics Self-Rating Scale) instrument (Larrabee, West, & Crook, 1991), but, like Niederehe's MSQ instrument (Gilewski & Zelinski, 1986), there are no published data examining correspondance between scales on the MAC-S and other metamemory instruments, such as the MIA. Perhaps equally

important, the MAC-S assesses self-rated change using a single global-rating item, in which subjects compared their current memory to "the best it has ever been". The question, as stated, appears to have some clinical utility (Crook and Larrabee report significant correlations between this item and measures of depression and memory performance). However, the lack of any specified time frame makes it unclear what the point of reference is for any given subject, how recent the change is, or whether ratings of current functioning represent an all-time low, or an improvement from some other point in time. As such, the item appears poorly suited to detecting age-differences in memory self-perceptions or testing hypotheses about such age differences.

Gilewski, et al., (1990), reported that subject age predicted approximately three per cent of the variance in retrospective self-evaluation of memory, using the MFQ instrument. Unlike the MIA, which requests ratings of change across an assortment of domains, relative to one reference point (10 years ago), the MFQ employs a single global rating of current status, relative to each of five previous reference points.

From these three reports, it would appear that stronger associations between subject age and perceived decline in one's own memory functioning are more likely to occur when the scale employed provides individuals with an identifiable time frame, as in the MIA and MFQ instruments, and when it requests multiple judgments of competence (e.g., "How good are you at remembering faces, compared to 10 years ago?") rather than single global ratings.

Only one of the existing metamemory inventories (the MIA; Dixon & Hultsch, 1983) contains a scale addressing sense of control over memory capability, making it difficult to determine the conditions under which this category of judgments demonstrates greater and lesser age differences. Taking into account such limitations, however, subsequent reports using the MIA (Hultsch, et al., 1987) have consistently observed a somewhat diminished sense of control over memory in older respondents.

Self-Perceptions of Forgetfulness

The most typically-used measure of memory self-report is frequency-of-forgetting (Gilewski & Zelinski, 1986; Herrmann, 1982). Although the wording of the rating

scheme may vary considerably, such scales generally request individuals to offer absolute (e.g., Sunderland, et al., 1986), or relative (Chaffin & Herrmann, 1983; Crook & Larrabee, 1990; Gilewski, et al., 1990; Riege, 1983) frequency ratings across a broad sample of everyday memory failures, representative of those spontaneously mentioned by adults (Cavanaugh, Grady, & Perlmutter, 1983; Crovitz & Daniel, 1984; Leirer, Morrow, Sheikh, & Pariante, 1990). These instruments typically correlate significantly with global self-ratings of memory functioning (Crook & Larrabee, 1990), and measures in which subjects indicate strengths and weaknesses in memory capability (Cavanaugh & Poon, 1989; Hertzog, et al., 1989). Some studies (Cavanaugh, et al., 1983) have employed an open-ended diary technique in which young and old subjects record everyday memory slips they may notice, while others (Cavanaugh, 1987; Perlmutter, 1978) have adopted a fairly broad approach, combining ratings of general forgetting with self-ratings across different content domains and intervals.

Studies investigating frequency-of-forgetting have not been as consistent in their findings of negative age-differences as have studies of self-assessed memory capability (Hultsch, et al., 1988). One of the few studies to find significant age differences in forgetting favouring the young required subjects to keep a diary of daily memory lapses (Cavanaugh, et al., 1983). The sample was particularly small (12 young and 12 old), making generalization from these data difficult. Using a larger sample, Cavanaugh and Poon (1989) observed significant negative age differences on both the MIA (using capacity self-ratings) and the SIME (using relative frequency-of-forgetting ratings), although age effects on self-ratings were somewhat smaller for the SIME than for the MIA. Two of the domains addressed by the SIME (names and rote memory) showed robust age differences, but self-rated frequency for the remaining six forgetting-domains did not differ between age groups.

The inconsistency of age differences in self-ratings using the SIME is fairly typical. Chaffin and Herrmann (1983) examined multiple memory domains (using the SIME) and reported modest negative age-differences in frequency-of-forgetting for a few select domains in one study, and positive age-differences for several other domains in

another study. The domains where Cavanaugh and Poon (1989) observed age differences did not demonstrate such differences in the Chaffin and Herrmann (1983) studies. More importantly, in both studies, the majority of domains investigated showed *no* age-differences in self-reported forgetting. Even more contrasting findings, using the SIME, were obtained by Erber, Szuchman, and Rothberg (1992), and Ryan (1992). Erber, et al., noted significantly *less* overall self-reported forgetting among older subjects on the SIME, whereas Ryan observed significantly *more*.

Cavanaugh (1987) used an unspecified adaptation of Perlmutter's (1978) questionnaire, and observed age differences in self-reported forgetting on only two domains, which, in turn, were different from the domains where age-differences were observed in the Chaffin and Herrmann, and Cavanaugh and Poon studies. Crook and Larrabee (1990) found a significant positive correlation between subject age and frequency-of-forgetting, using the MAC-S, but age still predicted relatively little variance in self-reported lapses (just over 1%). To summarize, whereas age is generally a useful predictor of how *good* people feel their memory is (Cavanaugh, 1987; Hultsch, et al., 1988), it is an inconsistent, and sometimes relatively poor, predictor of how *often* people think they forget, even though logically the two should be related.

Cavanaugh (1987) has suggested that negative age-differences in memory self-evaluation may only emerge when the act of self-evaluation is broached in a certain way. It would appear, from this brief review, that negative adult age differences in self-reported forgetting are most likely to emerge when memory is evaluated in comparison to some *idealized* reference point or anchor. Measures such as the MIA-Capacity scale (Dixon & Hultsch, 1983), in which individuals compare themselves to an abstract view of what it means to be "good" at remembering something, are one instance of this. Global ratings of whether one's memory poses a "problem" (Cutler & Grams, 1988; Gilewski, et al., 1990), provide another instance by implicitly asking subjects to compare their own functioning to what they think a "problem-free" memory is. In contrast, simple frequency-of-forgetting measures typically have an unspecified reference point, or no reference point at all. An illustrative exception to this is found in Ryan's (1992)

study, in which subjects rated hypothetical young and old targets *in addition to* themselves. In contrast to many other studies using the SIME, Ryan observed greater self-reported forgetting among older adults. Thus, where idealized anchors for comparison can be provided by means other than the actual wording of the items or scoring scheme (in this case, thinking about what younger and older people are like), subjects may still show age-differences in self-reported frequency-of-forgetting. Ryan's findings of age differences were particularly noteworthy, given the somewhat narrower subject age-range of her sample (few individuals were 60 or over), in comparison to other studies (e.g., Chaffin & Herrmann, 1983).

Beliefs About Adults as Rememberers

The increased likelihood of adult age-differences in memory self-evaluation, when idealized reference points are used, points to the putative role of social-schemas about age and memory in the self-evaluation process (Cavanaugh, 1987). One of the assertions commonly found in the literature, is that older adults may interpret their own memory functioning in terms of stereotypes of aging and the association of aging with dementia (Bandura, 1989; Cavanaugh, 1987; Hulicka, 1982). As a consequence, they may overreact to instances of their own forgetting (Hulicka, 1982; West, Boatwright, & Schleser, 1984; Zarit, Cole, & Guider, 1981). To some extent, such reactions to memory slips may be more exclusively the domain of depressed individuals than of older individuals per se (Niederehe & Yoder, 1989), but concern over memory has been cited as one of the chief mental health complaints of seniors (Lowenthal, et al., 1967).

These assumptions of overreaction in the research literature also tend to mirror popular views. It is common experience for adults to comment, either humorously or seriously, on each other's everyday forgetting as a "sign of senility", and books addressing older adults' concerns about declining memory (e.g., DeFelice & Nirenberg, 1987; West, 1985) have found a comfortable niche in the popular psychology market. Despite the apparent concensus about seniors' anxiety over dementia and susceptibility to stereotypes, few published studies have directly compared younger and older adults' reactions to their memory lapses (although see Cavanaugh, et al., 1983, and Erber, et

al., 1992), and none have directly tested the hypothesis that adults' beliefs about their own memory are influenced by their beliefs about the general relationship of age to memory.

Stereotypes of age-related memory decline.

The beliefs that adults hold about age and memory may be roughly classified into two categories: beliefs about what changes might occur with age, and beliefs about how the everyday memory behaviours of young and old should be interpreted, i light of these anticipated changes. To what extent do older and younger individuals expect memory to decline with age? Heckhausen and colleagues (Heckhausen, Dixon & Baltes, 1989; Heckhausen & Baltes, 1991) noted that, among a variety of traits, adults of various ages indicated an expected increase in both forgetfulness and absentmindedness with age, as well as low controllability of both characteristics. Heckhausen and Baltes noted little age difference in the extent of stereotypes that subjects voiced.

More specific examination of beliefs about memory have been explored in several studies using both questionnaire and interview techniques. Williams, Denney, and Schadler (1983) interviewed 24 adults (ages 65-75) regarding perceptions of age-related change in memory functioning, and beliefs about why these changes have occurred. Although a number of respondents indicated that their own, or other adults' memory, declined with age, they were fairly unanimous in affirming other adults' beliefs about memory decline with age, and endorsing the view that some people's memory might worsen because of such beliefs. Niederehe and Yoder (1989) used an 8-item measure of beliefs about age-related memory decline in their MMQ instrument, and reported both young and old age groups equally endorsing beliefs about age-related decline. Young and old subjects in Ryan's (1992) study gave frequency-of-forgetting ratings for different-aged targets, and themselves, on a modified version of the SIME. Using both within-subjects and between-subjects designs, Ryan found that subjects of all ages anticipated more frequent forgetting in older targets than in younger targets. She also found that older subjects' expectations of everyday forgetting across target-ages tended to be somewhat more differentiated than younger subjects' expectations. They tended to

express stronger stereotypes of memory and aging, primarily by virtue of their more positive expectations of younger targets' typical memory performance.

Erber, and her colleagues, have also examined age-stereotypes of memory with target ratings, using vignettes of varying length, with somewhat equivocal results. Erber, Etheart, and Szuchman (1992b) asked young adults to rate their confidence in young and old targets' ability to carry out a series of additional everyday prospective or retrospective memory tasks, after reading two-page vignettes in which targets demonstrated varying degrees of success and failure in retrospective or prospective recall tasks. Subjects expressed more confidence for nonforgetful targets than for forgetful ones, but did not offer different confidence ratings as a function of target age. Using a similar design, Erber, Etheart, & Szuchman, (1992a) asked both young *and* old subjects to listen to a taped simulated job interview in which young and old targets demonstrated varying numbers of memory failures. Subjects then rated the likelihood that they would assign tasks of varying degrees of cognitive difficulty to targets, and rated the memory ability of targets. Memory ratings tended to be higher overall for older targets (especially those committing fewer slips). Erber, et al., had originally anticipated that older targets would be rated *less* positively than younger targets, and suggested that ratings might be more egalitarian with the more extensive background information provided by the tape, as opposed to the much briefer written vignettes used in their previous studies. Kite and Johnson (1988) suggest that this generally tends to minimize age-stereotyping of targets. Erber, et al., also noted that older subjects were somewhat more differentiated in the perceptions of targets, assigning tasks more readily to nonforgetful targets, and more reluctantly to forgetful ones.

The studies by Heckhausen and colleagues, Williams, et al., and Ryan, provide support for the existence of social-schemas of age-related memory decline in both young and old adults, however, there is clearly variation, even within age groups, in acceptance of such stereotypes. Moreover, such stereotypes are, on average, not dramatically negative. Many of Williams, et al.'s (1983) subjects indicated no expectations of decline, and many also indicated that whatever decline was observed was related to

remediable factors. Although Heckhausen and Baltes' (1991) subjects indicated forgetfulness and absent-mindedness to be highly characteristic of later life, and highly undesirable traits, neither trait was designated by their sample as completely out of individuals' control. To some extent, these relatively non-negative perceptions of later life may result from properties of the instruments used to measure them, however, these expressed beliefs about the extent of age-related change in others are congruent with typical *self*-report scores observed by Hultsch, et al., (1987) on the MIA-Locus, and MIA-Change scales. Hultsch, et al. (1987) reported mean scale scores for all age-ranges which, although negatively correlated with age, still indicated belief in the moderate controllability and stability of one's own memory, even by the oldest subjects. Erber, et al.'s, (1992a, 1992b) findings suggest that where rich contextual information is provided, subjects are somewhat able to set age-stereotypes aside. Finally, both Ryan's and Erber, et al.'s, findings also suggest that older adults might perceive greater contrast between individuals felt to have a good vs poor memory (young target vs old, forgetful vs nonforgetful) than do younger adults. Rothbaum (1983) noted a similar trend towards adoption of greater stereotyping by elderly subjects in a study examining age-stereotypes of personal characteristics other than memory.

Meaningfulness of memory behaviour.

To what extent is there empirical support for the view that older adults' everyday memory behaviour is intepreted differently? A number of studies, have attempted to examine the types of information adults of different ages draw from the memory behaviour they witness in themselves or others. Investigation has generally been along three themes: subjects' attributions for memory performance, subjects' reactions to their memory performance, and subjects' judgments about the implications of memory performance.

Investigators have been interested in the sorts of attributions individuals of different ages make for their memory behaviour (Blank, 1984), primarily because such attributions adults may not only evoke affect, but may also evoke differential motivation or effort (Bandura, 1989). The majority of studies examining attributions have looked

at attributions for performance on memory and memory-dependent cognitive tasks or accomplishments (Banziger & Drevenstedt, 1982; Cavanaugh & Morton, 1988; Devolder & Pressley, 1992; Lachman & McArthur, 1986; Prohaska, Parham, & Teitelman, 1984; Rebok & Balcerak, 1989; Weaver & Lachman, 1990). Much of this literature requests attributions for cognitive performance in general (e.g., Prohaska, et al., 1984), or where specific to a memory task, for the individual's level of performance in the specific test context (e.g., Devolder & Pressley, 1992; Rebok & Balcerak, 1989). In general, older adults appear more likely to attribute their laboratory-task performance to internal, stable factors (Weaver & Lachman, 1990), uncontrollable factors (Devolder & Pressley, 1992), and, so far, are the only age group to attribute their performance to age (Devolder & Pressley, 1992; Weaver & Lachman, 1990).

Only two published reports have explicitly examined individuals' attributions about their own *everyday* forgetting. Elderly respondents, in Williams, et al.'s, (1983), interview study tended to attribute their forgetting to lack of concentration, lack of interest, and to a lesser extent, old age and poor health. A majority of respondents attributed age-related decline in memory functioning to inactivity, unfamiliarity with some materials, and self-defeating beliefs that it ought to decline. Cavanaugh and Morton (1988) interviewed a similar group of 20 older adults. Responses to open-ended questions were coded by raters as reflecting attributions to internal/external, stable/unstable, and global/specific causes, as per Weiner (1985). Using this coding scheme, the majority of respondents' attributions for their everyday memory performance revolved around internal causes. Respondents were approximately evenly divided in their attributions to stable vs unstable causes, and global vs specific causes. Congruent with what Williams, et al. (1983) observed, about half of their subjects indicated that interest, familiarity, and motivation to remember were important causes of their everyday memory performance. Although providing useful information, both reports are limited by the sample size and lack of a younger comparison sample. That being said, these studies report elderly attributional styles similar to those reported in Devolder and Pressley (1992) and Weaver and Lachman (1990).

Reports that have directly examined adults' reactions to everyday memory behaviour, rather than the attributions that might mediate them, have generally used ratings of discomfort and annoyance stemming from individual types of slips (Cavanaugh, et al., 1983; Cordoni, 1981; Erber, Szuchman, & Rothberg, 1992b), ratings of perceived seriousness of slips (Zelinski, et al., 1980; Gilewski, et al., 1990), and ratings of concern over memory (Crook & Larrabee, 1990; Niederehe & Yoder, 1989). Perceptions of seriousness or concern may be taken as a type of interpretive rating of the implications of forgetting, separate from simple tabulation or quantitative estimation of forgetting.

Much like frequency-of-forgetting, age-trends in concern over memory, or perceived seriousness of slips, have not been observed with any degree of regularity. Cavanaugh, et al., (1983) asked young and old subjects to maintain diaries of their daily forgetting and indicate how upset the various types of memory failures made them at the time. Older adults reported more lapses and were significantly more upset over them. Using categories of everyday forgetting, rather than specific memory slips, Gilewski, et al., (1990) asked subjects to rate how "serious" they consider their forgetting to be in each of those categories, and observed slightly lower seriousness ratings from individuals under 30 years of age, compared to those 30-49 years of age, but found little difference in ratings between those aged 30-49 and any of the older cohorts examined.

Several studies have requested ratings in response to exemplars of everyday forgetting based on the SIME (Chaffin & Herrmann, 1983). Cordoni (1981) asked a large sample of young, middle-aged, and old adults to rate how bothersome those everyday memory slips were, and found no age difference in bothersomeness ratings. Erber, et al. (1992b) asked young and old subjects to rate the degree of discomfort or annoyance they would feel in response to committing each of a variety of types of everyday forgetting on the SIME, and found that older subjects expressed significantly *less* discomfort/annoyance with their own forgetting than did younger subjects.

Studies which have used ratings of concern over memory have also failed to observe the expected age difference, predicted from anecdotal observation. Niederehe and Yoder (1989) observed that depressed individuals expressed more concern about their

memory on an 8-item questionnaire than non-depressed, but found no age-differences independent of depression. Crook and Larrabee (1990) found virtually no correlation between respondent age and rated concern over their memory slips, using a single questionnaire item.

It would appear from this brief review, that, contrary to anecdotal remarks (Hulicka, 1982; Poon, 1985; West, et al., 1984; Zarit, et al., 1981), there is little empirical support for the contention that older adults, *as a group*, are more upset about their everyday memory slips, or react to them more strongly, than do younger adults. If anything, there is likely more within-age variability in degree of upset than between-age variation. Where upset *does* occur, it may be characteristic of the particular sample. Scogin (1985) noted that older adults responding to recruitment notices for memory training tended to be somewhat more depressed, as a group, than adults responding to notices for an undescribed study of older persons. As Kahn, et al., (1975), and others (Niederehe & Yoder, 1989; O'Hara, et al., 1986) have noted, complaints and concern about memory tend to be higher among the depressed elderly. In view of this, the observation of age-differences in concern may depend somewhat upon the recruiting methods employed, and the resulting sample obtained. The same general sorts of conclusions may also be reached concerning adults attributions about their memory behaviour; older adults' attributions offered for own everyday and laboratory memory performance may be different from younger adults', in some respects, but there is a fair degree of overlap in the reasons that different-aged adults offer for their performance, and considerable within-group variation.

Perception of targets' memory behaviour.

How do adults interpret instances of forgetting in different-aged adults? Erber and her colleagues (Erber, 1989; Erber & Rothberg, 1991; Erber, Szuchman, & Rothberg, 1990a, 1990b) have examined adults' reactions to, and interpretations of, everyday forgetting, using ratings of old and young targets. Targets are generally depicted in paragraph-length vignettes, committing various sorts of memory lapses, covering a number of representative everyday memory domains. In a between-subjects

design, Erber (1989) asked young and old adults to provide seriousness ratings for a 30 year-old or 70 year-old female target. The vignettes employed depicted two different levels of seriousness, for each memory domain. Subjects read each vignette and rated the severity of each depicted lapse on a 7-point scale from "not at all serious" (likely to happen to anyone) to "very serious" (a possible sign of mental difficulty). Erber found that old and young subjects consistently distinguished between different degrees of seriousness in lapses. Overall, older subjects were significantly more lenient in their ratings, for both young and old targets, suggesting that older adults were actually *less* sensitive to memory slips. It is also possible, however, that older subjects were either more conservative in their willingness to infer mental difficulty, or simply had lower expectations of targets than did young subjects.

In a subsequent study (Erber, Szuchman, & Rothberg, 1990b), young and old subjects rated young and old targets across 8 vignettes for the degree to which the illustrated lapse was a "sign of mental difficulty", using a modified version of the original scale. Subjects also rated a number of different potential causes for the forgetting illustrated, the extent to which they felt that memory training was warranted by each illustrated lapse, and the frequency of occurrence of the illustrated lapse that they felt warranted medical/professional attention. Consistent with Erber (1989), younger subjects tended to display greater sensitivity to older targets' lapses, by more readily indicating lapses as signs of mental difficulty, and recommending professional evaluation, than did older subjects. Also, similar to Erber (1989), older targets' behaviour was more likely to be designated as a sign of mental difficulty, although in this case both young and old subjects evidenced what Erber terms a "double standard" in the evaluation of young and old targets' forgetting: both age groups saw the forgetting of older targets as more of a sign of mental difficulty. In general, both young and old subjects tended to see inattentiveness due to preoccupation, task difficulty, and inability, as the primary causes of forgetting in the vignettes presented, however, inattentiveness was more strongly nominated as a cause for younger targets' forgetting.

Erber, Szuchman, and Rothberg (1990a) replicated these findings using both targets and subjects of both sexes. Similar ratings of mental difficulty, and similar age-dependent attributions for forgetting were obtained. Again, forgetting in older targets tended to be viewed as more of a sign of mental difficulty, regardless of target or subject gender, or subject age. Erber and Rothberg (1991) presented subjects with photographs of old and young targets varying in physical attractiveness, and found that both old and young subjects were still more likely to suspect mental difficulty in older targets than in younger targets committing the same slips, as well as attribute younger targets' forgetting to more transitory or external causes, although more attractive targets received more excusable or remediable attributions.

Summary

The literature review suggests that age-differences in adults' evaluation of their own memory do not occur with great consistency. The circumstances under which they do occur, however, are more likely to be those in which adults compare themselves to some idealized performance anchor, suggesting that self-evaluation may be influenced by individuals' schemas of what occurs to memory with age.

In turn, evidence indicates that adults tend to view young and old as having different memory capabilities. Empirical studies have been inconsistent, however, in their support for the view that older adults treat their memory slips as more meaningful, or respond to them with greater alarm. Of the various reports examining emotional reactions to their own memory failures in non-clinical samples, only one (Cavanaugh, et al., 1983) has found reliably greater reported upset in older adults. Other reports have found either no relationship between alarm/concern and subject age (Crook & Larrabee, 1990; Niederehe & Yoder, 1989), less extreme reaction to memory failures in older adults (Cordoni, 1981; Erber, et al. 1992), or little difference between adults in the age range for greatest risk of dementia, and those substantially younger (Gilewski, et al., 1990). In contrast, studies that have examined adults' perceptions of others' memory failure (Erber, 1989; Erber, et al., 1990a, 1990b; Erber & Rothberg, 1991) have found a tendency for subjects to see older targets' failures as being more of a potential indicator

of some deeper seated memory deficit, and less due to circumstantial factors. As indicated by the findings of Erber, et al., (1992a, 1992b), however, the availability of contextual information may play a role in subjects' perceptions of old and young adults' forgetting.

Overall, then, adults tend to show general agreement in degree of adherence to social-schemas of age-related memory functioning, and also show some age-differences in their perception of their own memory that roughly mirror these social-schemas. However, wide individual differences remain in both these domains. Together, these findings suggest that adults' memory self-report, and in particular, their discontent or concern with their memory, may be more likely to show a negative age-trend to the extent that subjects adhere to such social-schemas, and incorporate them into their beliefs about themselves. In the absence of adherence to such beliefs, identification with them, or use of memory self-report measures that are likely to tap such beliefs, older adults are not likely to demonstrate the alarm or sensitivity about their memory often attributed to them.

Chapter Three

Implicit Theories of Memory and Aging

The panorama of findings in the areas of self and other-perception, reviewed here, is a rather unwieldy collection. Young and old adults sometimes express different beliefs and reactions about their own, or others' memory, and sometimes they don't. One means of collating these disparate and highly varied findings is the notion of "implicit theories" of human memory (Cavanaugh, Feldman, & Hertzog, 1993). Implicit theories (Berg & Sternberg, 1986; Dweck, 1986; Ross, 1989) are informal, but organized, sets of propositions held by individuals, which are used to explain some aspect of human behaviour in others or in one's self. The present chapter outlines some of the models of implicit theories that have been advanced in the literature, and their proposed relationship to memory performance and self-report in adulthood. A critique is provided of the methods currently employed to examine perceptions and attributions characteristic of adults' implicit theories of memory.

Implicit Theories and Age

Dweck (1986; Dweck & Leggett, 1988) has suggested that individuals tend to explain their own cognitive performance by adopting one of two different naive theories. Individuals who adopt what Dweck terms an "entity theory", see cognitive performance as emanating from a stable, unalterable, trait in the individual - i.e., an entity akin to ability. Individuals adopting what Dweck terms an "incremental theory" see performance as stemming out of a constellation of factors, such as effort, practice, strategies, task parameters, and so on - things which can be improved upon so as to increment future performance.

Within Dweck's framework, the theory adopted by the individual has an impact on their goals, degree of motivation, and performance-related affect. Since individuals holding entity theories feel their performance reflects on their ability, they approach cognitive tasks with the goal of preserving or enhancing self-esteem. Consequently, tasks where the likelihood of success is low will be avoided, whereas tasks that can be easily succeeded at will be sought out (Bandura, 1989). Moreover, since failure is seen as

reflective of inability rather than insufficient effort, such individuals tend to decrease motivation and effort in the face of failure. Finally, such individuals may respond to poor performance with negative affect, and diminished self-concept (Dweck & Leggett, 1988).

In contrast, those holding an incremental theory tend to approach tasks with what Dweck terms a "mastery" style, which is geared towards optimizing performance. Since, from an incremental theory, success relies partly on effort expended, such individuals tend to increase effort and motivation in response to difficulty or initial failure. They may also attend more to those aspects of task engagement that lead to improved performance (Bandura, 1989). To the extent that self-concept is treated as separate from performance level, poor performance will result in little negative affect stemming from performance level per se (i.e., individuals may still be frustrated by their performance for practical reasons, though not necessarily embarrassed or discouraged).

As Dweck (1986), and Bandura (1989), have pointed out, such theories of performance may become self-maintaining. Expending *more* effort, and attending to strategy/performance tradeoffs, is more likely to result in eventual success, corroborating the view of strategic effort as essential, whereas expending *less* effort is likely to result in failure, corroborating the view that task mastery lies outside the range of abilities of the individual. In a sense, the performance outcome emanating from the individual's implicit theory serves a kind of evidenciary function in corroborating, and maintaining, that theory. This potential relationship between theory held and subequent performance serves to underscore the potential importance of such beliefs. Although Dweck's approach is derived from research with schoolchildren, it is readily generalizable to adults.

Ross (1989) has extended Dweck's notion of implicit theories in several ways. First, he applies Dweck's model to the consideration of personal characteristics beyond cognitive performance, such as attitudes and personality traits. Second, he suggests that individuals' implicit theories of some given characteristic may also incorporate notions of developmental change and stability in that characteristic over the lifespan, as opposed

to simply current functioning. Finally, he proposes that individuals' implicit theories may incorporate some notion of developmental changes in the degree to which the characteristic or domain can be treated in an entity-like manner at different points in the lifespan (Ross, 1989). Ross treats beliefs about control or malleability of the behaviour in question as potentially orthogonal to beliefs about change and stability. An individual may, for instance, hold an implicit theory in which the specific personal characteristic is seen as systematically varying in its' controllability over the lifespan.

Beliefs about change and controllability may not be completely independent, however. An obvious (and somewhat tautological) example would be the perception of "impulsiveness" or "recklessness" as a trait that declines with age, precisely *because* individuals are seen as developing greater self-control over their lives. Beliefs about change and controllability might also be linked when considered within the context of other sorts of evaluation, such as the desirability of increases or decreases in those traits. Heckhausen and Baltes (1991) found correlations among adults' ratings of the desirability, controllability, and direction of anticipated adult-age changes in various sorts of personal characteristics. Undesirable traits which were seen as more characteristic of later life, also tended to be perceived as less controllable. In a sense, the degree to which individuals might perceive control over a personal characteristic may be partly a function of the degree to which the characteristic is valued, and control over the characteristic *itself* is seen as desirable. The possible end result is that individuals may be more likely to see some aspect of their behaviour as linked to an unremediable trait if it is perceived as undesirable *and* highly characteristic of late life, however this remains an empirical question.

Implicit Theories of Memory

Applied more specifically to the context of memory performance, individual adults may lean more towards one of two general implicit theories about memory in adulthood. Some may lean more towards a type of lifelong incremental theory in which adult memory performance is seen as generally varying across tasks, contexts, and states, but *potentially* maintainable at optimum levels across one's lifespan. As subjects in

Williams, et al.'s (1983) interview study noted, maintenance could depend upon effort, interest, daily activities, and other indirect factors such as serious challenges to health. In contrast, other adults might lean more towards a hybrid implicit theory, in which maintenance of optimal performance levels is perceived as increasingly out of the individual's control, as their memory performance becomes increasingly poorer with advancing age. Success in retrieval would be seen as less likely in later life, and more influenced by non-repeatable factors when it occurs. Failure would be treated as reflective of loss of memory competence, and due to growing old (Green, 1984).

What is important to note here is that, within the same general implicit developmental theory, some individuals may gradually shift from an incremental to an entity interpretation of their own remembering as they grow older. Much of the preceding literature review suggests this as a reasonable summary. Attributions for older targets', or older adults' own, memory failures show a tendency towards stable, disposition-like causes (Cavanaugh & Morton, 1988), such as "mental difficulty" (Erber, et al., 1990a, 1990b) or "ability" (Devolder & Pressley, 1992; Weaver & Lachman, 1990), whereas attributions for younger adults' forgetting place more emphasis on transitory factors like disinterest, or effort (Devolder & Pressley, 1992; Erber, et al., 1990a, 1990b). Although personality factors may have some bearing on subjects' perceived control over their memory (Lachman, 1983), there appears to be some unanimity in adults tendency to see older adults' forgetfulness as somewhat more likely and less controllable (Heckhausen & Baltes, 1991; Heckhausen, et al., 1989; Niederehe & Yoder, 1989; Ryan, 1992; Ryan & See, 1993). Age differences in adults' self descriptions tend to corroborate this: older adults describe themselves having a poorer memory, having declined,and having less control over their memory, relative to younger adults (Hultsch, et al., 1988). As noted in the previous section, however, these subject-age and target-age differences are generally modest. Such modest differences may reflect varying proportions of individuals holding specific implicit theories among adults within different age groups, rather than a wholesale *shift* with subject age.

Hertzog, et al., (1990a) suggest that many of the metamemory questionnaire measures employed in the literature (e.g., notions of change and controllability, or reasons for forgetting) reflect an underlying factor of memory self-efficacy, however the same measures may also reflect, or be influenced by, the implicit theories held by individuals. The two approaches do not necessarily compete with each other as explanations of memory self-report. Rather, individuals' self-efficacy beliefs may be a partial outcome of the implicit theory they hold. Individuals may perceive high or low self-efficacy within either type of implicit theory, depending on the interaction between performance obtained and the implicit theory held (Dweck, 1986). For instance, older individuals who treat their performance as largely due to external, remediable, factors, may still be able to maintain relatively high self-efficacy in the face of failure. In contrast, those who treat performance as reflective of a stable trait may be more likely to have their sense of self-efficacy undermined by the same objective failure. Consequently, for any given level of actual everyday memory performance, negative reactions to performance, and lower memory self-efficacy estimates, by older adults, may be occurring primarily in those adopting an entity theory of memory in late life. However, any observed relationship between indices of implicit theory and any self-evaluation measure would also depend on the degree to which the self-report measure taps the individual's implicit theory. Self-report measures making little or no appeal to schemas about the basis of performance would not be expected to be robustly related to measures of the implicit theory held.

Methodological Issues

Few, if any, studies have directly addressed the hypothesis raised by Cavanaugh, et al. (1993) that adults' memory self-report, in the metamemory and memory complaints literature, is related to their implicit theories of memory in adulthood. Although there are many potential instruments available for addressing such hypotheses, not all are well-suited to the task, and not all studies employing such instruments have permitted assessment of the utility of these instruments for addressing age-differences in implicit theories of memory.

In a pilot study with older adults, Person and Wellman (1990), attempted to distinguish between what they termed an "infirmity" theory of adult memory, where memory problems are seen as a kind of disease process, getting progressively worse and unmodifiable by the individual, and a "skill" theory, in which memory is seen as akin to a remediable, sustainable, and improvable skill. These correspond roughly to Dweck's (1986) categories of entity and incremental theories, respectively. Using a specially-designed questionnaire (Memory Theories Instrument, or MTI) in which subjects selected statements best reflecting their beliefs about memory from each of 8 pairs of statements, Person and Wellman observed that response patterns tended to be bimodally distributed according to the two classes of beliefs. They did not observe any memory performance, health status, or subject-age differences, covarying with MTI scale scores. However, individuals who endorsed "infirmity"-like statements were more likely to have been recruited through memory training workshops, have less education, made significantly more negative prognostic statements about their performance while engaged in tasks, and also tended to verbalize more, especially repeating stimuli presented to them.

Although not compelling, Person and Wellman's findings are consistent with some of the predictions that may be made from the implicit-theory view. In particular, older individuals holding an entity or "infirmity" theory of memory would be expected to demonstrate low self-efficacy for tasks perceived as difficult (reflected in negative prognostic statements on a memory task), and approach memory tasks in a minimally strategic fashion (reflected in their use of a non-elaborative rehearsal strategy like repetition).

Person and Wellman's MTI instrument is a useful start, but lacks data on young subjects, and any extensive validation, such as relationships to other indices of stereotypes about memory, or other metamemory measures. Additionally, the requirement for subjects to choose between statements, rather than indicating degrees of endorsement for each statement, may inflate the degree of endorsement of either competing theory, and preclude the possibility that individuals can hold both theories, applying them in different contexts. Finally, the MTI tends to specifically address

theories of older adults' memory failures, rather than broader implicit developmental theories of adult memory which incorporate changes over adulthood (Ross, 1989). It remains unclear from their pilot data, whether the MTI can simultaneously assess beliefs about younger adults' memory.

Some of the same basic beliefs that the MTI attempts to tap may also be gleaned by means of other individual scales, such as attribution ratings. One of the essential predictions of the implicit-theory approach advanced by Dweck (1986) and Ross (1989), is that adults holding an entity theory ought to attribute instances of everyday memory performance to something internal and unmodifiable, like an ability, whereas those holding an incremental theory ought to see everyday behaviour as isolated instances, each with their own set of circumstances and mediating factors. Ideally, one ought to be able to directly address the issue by asking subjects to make attributions about forgetting, and offering "ability" as one possible causal attribution subjects may make. In conjunction with those results reported by Erber and colleagues (Erber & Rothberg, 1991; Erber, Szuchman, & Rothberg, 1990a, 1990b) increased attributions to ability by older adults should provide relatively compelling evidence that they adopt a more entity-like theory of memory.

As Rabbitt and Abson (1990) point out, though, everyday memory performance tends to be highly domain specific; for instance, some people are very good with names or numbers, others are not. Thus, attributions to "ability" may not necessarily imply attributions to some more general underlying memory-ability trait, unless subjects are explicitly directed to broach them as such. Individuals may possess different implicit theories about different domains (Dweck & Leggett, 1988), attributing their optimal performance in one domain largely to being "good at" that domain, and poor performance in another to simply not working enough at it. Moreover, there is little to prevent subjects from construing "ability" as domain-specific for one performance outcome, and general for another (I succeeded because I'm good with numbers; I failed because I'm old and can't remember very well anymore; Banzinger & Drevenstedt, 1984; Green, 1984). Congruent with this, Erber, et al. (1990a, 1990b) noted that

attributions to ability (without any direction as to what level to interpret "ability" at) showed wide variation across the vignettes they employed. Finally, there is also the question of extrapolating from attributions made for unfamiliar laboratory performance (Devolder & Pressley, 1992; Weaver & Lachman, 1990), to attributions made for everyday performance. Consequently, the typical method of examining subjects' attributions of either targets' or own memory performance to "ability" does not permit one to determine if subjects see memory in older adults as stemming from a general memory trait.

In light of this, a more appropriate, and perhaps less problematic, type of attribution, pertinent to implicit theories of memory, might be attributions to age itself. Age is not domain-specific in the way that ability is, and is not contextually-dependent, like attention, motivation, or effort. Although individual concommitants of age (e.g., declining health, inactivity) may be remediable, age itself is uncontrollable, and unremediable, which is more in line with the original distinction between entity and incremental theories (Dweck and Leggett, 1988; Ross, 1989). Williams, et al., (1983) reported that some of their respondents spontaneously offered "old age" as a rationale for some of their forgetting. Weaver and Lachman (1990) also found that older subjects were more likely than younger subjects to attribute their own poor performance on a memory task to age (although other causes were more strongly endorsed, and more frequently nominated, as the major cause). To date, no published reports have systematically examined attributions to age for subjects' own or targets' instances of everyday forgetting.

Attributions to age, however, are also not without problems and potential confounds. As Green (1984) points out, "age" may represent accrued expertise and a cause for success on the one hand, but may also represent quite different factors in the case of failure. Attributions to "age", although they may be part of the individual's beliefs about memory, may also be confounded by the subject with a host of other age-related factors not central to an entity theory. Some of Williams, et al.'s (1983) respondents indicated that their memory for some things had declined because they didn't

perceive it as being as important as it once was (indeed, more than nominated age as a major factor), and because their health had declined. The same reasons were also offered for other adults' increased forgetting. Insomuch as an older individual or target may be perceived as not caring about investing effort because they are older, an attribution to age may, for the subject, be functionally equivalent to an attribution to effort, even where effort is offered to subjects as an alternative attribution. In the case of typical laboratory list-learning tasks, "age" attributions may reflect length of time out of school, practice with such tasks, or anything else which the individual deems influential and strongly age-related. This may be particularly problematic where subjects are offered few options for alternative attributions or little guidance in distinguishing between attributions. In view of these potential confounds, explicit attributions to age per se present a less than adequate means for testing hypotheses about subjects' implicit theories of memory.

To the extent that negative responses to failure are seen as a consequence of one's implicit theory (Dweck & Leggett, 1988), measures of negative reactions may serve as an indirect index of the individual's implicit theory. Existing measures of reactions to one's own forgetting may also introduce confounds via their phrasing and anchors. In theory, the "Seriousness" scale in the MFQ (Gilewski, et al., 1990) should provide some indication of how much meaning adults draw from their everyday lapses, however, the scale's phrasing fails to make explicit whether subjects should interpret the "seriousness" of forgetting episodes in terms of their *practical* consequences (e.g., the results of forgetting a valued customer's name), or their *diagnostic* aspects (i.e., whether it should be taken as a sign of a more pervasive memory problem). Pertinent to this, Erber, et al. (1990b) noted that the variable responses generated for some of their vignettes appeared to correspond to the practical consequences of the forgetting illustrated in the vignette (e.g., forgetting where one has placed a non-expendable sum of money).

It is also worth noting that, in the MFQ, subjects provide seriousness ratings of their forgetting only *after* they have indicated how often the same everyday memory domains present a "problem" to them. In effect, the questionnaire implicitly asks

subjects to first differentiate instances of forgetting based on their consequences ("How often do these present a memory problem to you...?"), and only then inquires about subjects' perceptions of the seriousness of those episodes. Consequently, although the MFQ has demonstrated merit in other regards (Gilewski & Zelinski, 1986; Zelinski, Gilewski, & Anthony-Bergstone, 1990), it is poorly suited for investigating age-differences in perception of everyday memory, since subjects may end up providing seriousness ratings for selected subsets of forgetting behaviour.

Ratings such as degree of "upset" (Cavanaugh, et al., 1983) and "discomfort" or "annoyance" (Erber, Szuchman, & Rothberg, 1992), may both depict negative reactions to failure (a consequence of adopting an entity theory of memory), but may also be reflecting comparison against a variety of very different referents (Higgins, Strauman, & Klein, 1986). Individuals may be comparing their own behaviour against what *should* have occurred, or perhaps against some imagined possibility (e.g., they might have some type of organic memory deficit or mental problem). In some respects, ratings of upset, discomfort, and annoyance may be applicable to either type of referent in varying degrees. Consequently, these ratings are problematic for the same reasons that "seriousness" ratings remain problematic: in the absence of explicit instructions, it is unclear whether subjects are rating the social, pragmatic aspects of their forgetting (which may be irrelevent to their implicit theory), or their apprehension about what that forgetting might mean about their cognitive status, in the context of their implicit theory of cognitive aging. Even where unambiguous measures of concern over memory are obtained, it remains unclear whether such expressed concern provides evidence about normal adults' implicit theories per se. A number of studies have indicated that memory complaints are predicted by depression-scale scores (Kahn,et al., 1975; O'Hara, et al., 1986; Scogin, Storandt, & Lott, 1985; West, et al., 1984; Williams, Little, Scates, & Blockman, 1987; Zarit, 1982).

Erber's target-rating paradigm (1989; Erber & Rothberg, 1991; Erber, et al., 1990a, 1990b), provides a number of methodological advantages for examining intepretation of memory behaviour. Target-age has the advantage of being easily

manipulated, permitting both within-subject and between-subject designs to evaluate the role that target-age plays for subjects. Additionally, the context, content, and consequences of memory behaviours may be specified for targets, and systematically varied. In contrast, when subjects provide annoyance or attribution ratings for their own forgetting, without any information about the consequences, frequency, or circumstances of that forgetting for the subject, it is difficult to accurately determine if any age-group shows proportionately greater reaction to their forgetting.

Target-ratings clearly hold many advantages as a general method, but they are still subject to the same kinds of phrasing-related confounds as self-ratings. For example, Erber's first study (1989) confounded several different dimensions in the rating scale, in a manner similar to the MFQ-Seriousness scale (Zelinski, et al., 1980). Anchors at one end addressed anticipated likelihood ("it could easily happen to anyone") and clinical diagnosticity at the other, confounding two types of ratings. To the extent that subjects had the option to consider the forgetting illustrated in her vignettes along either dimension, it is not surprising that older subjects may have failed to employ the same double standard employed by younger subjects, particularly since frequency and diagnosticity were presented as mutually opposing characteristics.

This particular confound was addressed in subsequent studies (Erber, et al., 1990a, 1990b) in which subjects specifically rated the extent to which the forgetting illustrated in the vignette was a sign of mental difficulty. With this particular change in phrasing, both young and old subjects demonstrated target-age differences in their ratings, in contrast to the 1989 study in which only younger adults did so. Although an improvement, the change to a single dimension assessing "mental difficulty", introduces another confound. Subjects may feel they are being asked to evaluate something which they perceive themselves as having little expertise in (i.e., clinical diagnosis), resulting in conservative ratings. Indeed, although significant target-age differences were observed on mental-difficulty ratings, mean ratings provided in three separate reports (Erber & Rothberg, 1991; Erber, et al., 1990a, 1990b) fell well below the mid-point of the scale, despite inclusion of vignettes depicting more serious forgetting.

These findings suggest that neither older or younger subjects react with much alarm to memory slips in older targets, however this may simply reflect more cautious ratings. Even where subjects are equally likely to apply an entity theory to old and young targets, they may consider "mental difficulty" as the more appropriate expression of an entity theory in the case of older targets. Hence, ratings of mental difficulties may bias subjects to rate old and young targets differently, despite identical adherence to the same general implicit theory of targets' behaviour. As such, although perhaps suited to exploring other sorts of beliefs, ratings of mental difficulty may be unsuited to evaluating more fundamental beliefs about the nature of memory across adulthood.

Chapter Four

Study One

Measuring Implicit Theories of Memory Across Adulthood

The preceding review suggests that an implicit-theory framework may be useful for bringing together diverse sorts of findings in the adult metamemory, memory complaint, and memory attribution literature. It also suggests that there are two aspects of an implicit-theory interpretation to be approached separately: (a) individuals' implicit theories about what general happens to memory across the lifespan (that it does or doesn't decline; that it does or doesn't change with respect to its' basis in some ability-like trait), and (b) individuals' implicit theories about their own memory (that their own everyday memory functioning emanates from remediable factors vs an ability-like trait). The assumption here is that the former influences the latter.

The first study examines younger and older adults' implicit theories of human memory across the lifespan; in particular, their beliefs about age differences in the level of everyday memory performance across adulthood, and their beliefs about the trait-like nature of memory across the lifespan. On the basis of attribution and age-stereotyping studies (Devolder & Pressley, 1992; Heckhausen, et al., 1991; Rebok & Balcerak, 1989; Ryan, 1992; Ryan & See, 1992), in addition to theoretical arguments (Ross, 1989), it is anticipated that subjects will generally depict everyday memory functioning as being poorer in later life, and as being more related to a stable memory trait. These two sets of beliefs should be interrelated, such that individuals who expect memory to decline across adulthood should also see everyday memory in later life in more entity-like terms.

Ryan (1992) has successfully demonstrated that brief frequency-of-forgetting instruments like the SIME may be easily adapted to examine age-stereotypes of expected level of performance by simply replacing self-ratings with target-ratings. In their basic form, however, such instruments provide no information about what subjects think such memory slips may mean (i.e., the degree to which performance is seen as reflecting a trait). Conventional frequency-of-forgetting instruments, such as the SIME and the frequency-of-forgetting scale on the MFQ (Gilewski & Zelinski, 1986) also suffer from

the shortcoming that they only address forgetting, neglecting the possibility that individuals might draw different sorts of information from successful remembering. Indeed, Zarit, et al., (1981) anecdotally note the paradox that older adults may draw strong inferences from their isolated memory slips while ignoring a lengthy string of remembering successes over the same time period. Consequently, any instrument(s) addressing the possible role of implicit theories in creating concern over memory should preferably address the possible differential informational value of successful remembering, in addition to forgetting, and also permit the investigator to assess subjects' beliefs about the basis of performance, regardless of the level of performance. Finally, even where both remembering and forgetting behaviours are offered up for rating, it may be difficult for subjects to evaluate the meaning of such behaviours if they are simply presented as a category (e.g., forgetting names) without any contextual information (as in the MFQ), as opposed to a specific instance with some minimal contextual detail supplied (e.g., not immediately recognizing the face of someone known reasonably well).

As noted in the previous chapter, many of the methods employed to examine adults' interpretations of everyday memory behaviour, introduce confounds between different sorts of attributions (e.g., domain-specific vs general ability, age per se vs age-related factors) that render them unsuited to testing hypotheses about adults' implicit developmental theories of memory. In view of these potential confounds, more useful indices would address attributions for memory behaviours to some general underlying memory-ability trait that does not hold any particular a priori age bias (such as in the case of "memory difficulties"), and does not serve as a summary attribution to multiple, unspecified causes which may be confounded with notions of a memory-ability trait (such as "age").

A more balanced, unambiguous, and realistic, measure of individuals' tendency to adopt a trait-like explanation of everyday memory behaviour in later life, would include examples of both successful and unsuccessful memory performance, in a manner that would permit separate examination of subjects' expectations, and interpretations of

memory behaviour in young and old targets. Vignettes depicting different-aged targets, such as those employed by Erber (1989), may serve such a dual purpose. However, as has been observed (Erber, Etheart, & Szuchman, 1992) the provision of highly detailed contextual information may also serve to minimize apparent age-stereotypes (Kite & Johnson, 1988) or support alternative attributions to those driven by age-stereotypes or implicit theories. Consequently, the ideal measure of perceptions of adult memory would involve relatively brief target descriptions of concrete instances of remembering or forgetting, incorporating sufficient information to mimic informal observations of everyday memory behaviour.

Putative Outcomes of Maintaining an Entity Theory

The analysis and literature review in the preceding chapter suggests that the particular type of implicit theory one adopts will have varying degrees of impact on memory self-report and self-perceptions, depending on how much the self-report measures tap such beliefs. Consequently, the first study explores two forms of memory self-report, in terms of their relationship to subject age, and to measures of individuals' implicit theories of memory.

According to the stance outlined, greater negative reaction to failures in everyday memory behaviour should be most characteristic of older individuals adhering to an entity-like theory of memory in later life, than of elderly individuals per se (Hulicka, 1982; Kahn, et al., 1975; Zarit, et al., 1981). That is, if one sees everyday memory performance as stemming from an unremediable trait in later life, and one *is* elderly, one ought to be at greater risk for having subjective competence undermined by those everyday failures that do occur. In contrast, if one is elderly, but sees no association between everyday memory behaviours and some underlying memory trait, one ought not be be terribly upset about one's memory or perceive it in a negative light.

The construct offered here as a potential concommitant of an individual's implicit theory is "memory satisfaction" - the degree to which the individual sees their everyday memory functioning as generally acceptable. For any given self-observed level of performance (presumably, those who view themselves as more forgetful should also be

more dissatisfied with their memory), individuals holding a more entity-like theory of memory in persons of their age should, ideally, be less content with their memory, since whatever everyday memory failures do occur are seen as reflective of some fundamental level of ability. Memory satisfaction is treated here as conceptually distinct from (although conceivably predictive of) indviduals' worry or concern over memory, and from more tabulation-like (e.g., how much do you forget?) and social-comparison-based (e.g., how good is your memory for faces?) memory self-assessments on questionnaires. Memory satisfaction is not an explicit component of any existing metamemory/memory self-report questionnaires (Gilewski & Zelinski, 1986).

Another hypotheses, advanced in the literature review, is that memory self-report measures which are effectively decoupled from implicit developmental theories in their phrasing or administration, should not show the age-pattern corresponding to such beliefs. The Everyday Memory Questionnaire (EMQ), employed by Sunderland, et al., (1986) provides a suitable candidate because it does not employ descriptors which might be construed as constituting an "idealized" anchor, such as those found in the MFQ-Frequency scale (Gilewski, et al., 1990), or the MIA-Capacity scale (Dixon & Hultsch, 1983). The EMQ simply provides subjects with concrete descriptions of a variety of everyday memory slips, and requests absolute frequency-of-occurance estimates.

The EMQ has generally not resulted in the negative age differences in self-report that have been observed with other types of self-evaluation instruments (Sunderland, et al., 1983). Gilewski and Zelinski (1986) have suggested that the EMQ might be a less valid memory self-report measure than some others because of this. The current analysis, however, suggests that the EMQ might not display negative age differences simply because it is relatively uninfluenced by individuals' beliefs about age-related decline. Consequently, it is anticipated that EMQ scores will be unrelated to subjects beliefs about age-related memory decline in adulthood, in addition to not demonstrating negative age-differences.

Is It Reasonable to Study Attitudes About Memory Without Studying Memory Itself?

The ideal approach to assessing the putative role of implicit theories of adult memory involves assessing the variance in memory self-report accounted for by indices of implicit-theories when *actual* performance is controlled for. The current study eschews measures of actual memory performance and is made weaker in some respects because of that. However, several factors should be considered. First, there is a fair degree of consistency in how much variance in self-report is generally *not* predicted by valid indices of memory performance - upwards of eighty percent - hence, there is some a priori basis for judging the relative importance of social-schema factors on self-report in the absence of actual performance data. Second, to the extent that variance in memory self-report appears to stem largely from sources other than objective self-observation, it is reasonable to focus on social-schema\self-report relationships per se. Finally, from a purely practical standpoint, given the potential size and cost of a study implementing all three types of measures (stereotypes, self-report, performance), it is unwise to take on the more costly element (performance measures, for which individual testing and remuneration is required) in the absence of some initial demonstration of any social-schema/self-report relationship.

Specific Hypotheses

Specifically, then, the major predictions of Study 1 are that:

1) Subjects of all ages will demonstrate some degree of age-stereotyped expectations about the everyday memory performance of old and young targets.
2) More pronounced stereotypes of age-related memory decline should predict more entity-like perceptions of memory in older targets.
3) Older adults will be more likely to perceive memory of their own age group in entity-like terms compared to younger adults' perceptions of their own age group.
4) Older adults will not report more forgetting than younger adults.
5) Subjects' satisfaction with their memory should be predicted by their perceptions of their own forgetfulness, and the extent to which they see performance for their age group as emanating from some ability-like trait.

Chapter Five

Method

Sample and Recruitment

The subjects were all community-dwelling adults. The majority of both young and old subjects were recruited from display booths at a trade show for seniors, a large urban shopping mall, and a public library in Victoria, British Columbia. Additional subjects were recruited from Elderhostel classes, and the Psychology Department subject pool at the University of Victoria. Individuals expressing interest in participation were shown a business-reply envelope containing three questionnaires, and were informed of the general purpose of the study, as well as the content and format of the materials. Potential subjects were informed in person, and in a covering letter enclosed in the envelope, that the questionnaires were completely anonymous, and that volunteering entailed no obligation to complete or return them.

In the absence of any a priori rationale for selecting a single specific age boundary separating nominally young from nominally old, no subjects of intermediate ages (37-54) were included in the analyses, so as to make the age groups clearly distinct. This eliminated 12 respondents from the original 196 questionnaire packets returned. A final sample of 184 adults, with complete data for the primary measures (defined as more than 80% of the items for each of the EMQ, MSS, Typicality and Diagnosticity scales; see *Materials* section below), was obtained from the roughly 600 packets distributed: 77 younger subjects ranging between 18 and 36 years of age ($\underline{M}$=25.9 years), and 107 older subjects between 55 and 82 years of age ($\underline{M}$=68.0 years). The age ranges were selected such that older subjects were likely to be retired or within a few years of voluntary retirement, whereas younger subjects were roughly university age (although not necessarily attending university), or slightly older.

Although degree of English fluency was not specifically requested from subjects, the manner of distribution of materials was such that only subjects sufficiently fluent in English would likely decide to take the materials. Within each age range, roughly twice as many questionnaire packets were returned by females, compared to males (24-M and

53-F for the young sample, 39-M and 68-F for the older sample). No records were kept of how many males and females in each age range initially took the materials.

Demographic, self-rated health, and affective characteristics of each age group are summarized in Table 1. Both age groups tended to be fairly well-educated, with 48% of younger, and 41% of older, subjects reporting the equivalent of an undergraduate degree (16 years), or better. Younger subjects had a mean of 15.3 years of formal education, whereas older subjects had a mean of 14.9 years. This difference was not significant (15.3 vs. 14.9 years), $F(1,182)=1.19$, $p=.28$. In view of possible cohort differences in both access to, and duration of, formal education (Poon, Krauss, & Bowles, 1984), the two age groups may be considered as superficially matched on education, although not necessarily equally representative of their respective cohorts.

The majority of young subjects classified themselves as either primarily students (57%) or currently employed (31%). The majority of older subjects classified themselves as either retired (80%) or employed (6.5%). Smaller proportions of each group classified themselves as either homemakers or unemployed.

Materials

Multiple scales were presented in the form of three questionnaire booklets to be returned in a postage-paid business-reply envelope.

Personal Data Booklet.

The first questionnaire booklet (see Appendix A) examined a number of demographic, and other subject background variables. Self-rated health was assessed by two items in which subjects rated their health, relative to others, and relative to a perfect state of health (1=very poor, 5=very good, averaged over both items). Subjects also rated how happy they were (1=not too happy; 3=very happy), and how much they felt their daily activities demanded of their memory on a 5-point scale (1=little or no remembering; 5=constant remembering).

The Personal Data Booklet also contained two brief scales: the Affect Balance Scale (Bradburn, 1969), a commonly-used (Andrews & Robinson, 1991) ten-item checklist examining prevailing mood over the past month, and the Memory Satisfaction

Table 1

Sample Description - Study 1 (Standard deviations in parentheses)

		Younger 18-36 yrs	Older 55-82 yrs	
n		77 (24-M, 53-F)	107 (39-M, 68-F)	
Age	M	25.9 yrs	68.0 yrs	
	SD	4.1	6.5	
Education	M	15.3 yrs	14.9 yrs	*n.s.*
	SD	2.4	3.2	
Health	M	3.85	4.32	***
	SD	0.64	0.71	
Happiness	M	2.17	2.08	*n.s.*
	SD	0.57	0.47	
Affect Balance	M	5.45	6.25	**
	SD	1.64	2.01	
Perceived Memory Demands	M	4.06	3.24	***
	SD	0.86	1.16	
EMQ	M	6.30	5.14	***
	SD	1.73	1.63	
MSS	M	3.31	3.38	*n.s.*
	SD	0.92	0.79	

* $p < .05$, ** $p < .01$, *** $p < .001$.

Scale, a six-item scale which examines satisfaction with general memory functioning. The Affect Balance Scale provides an overall score reflecting the balance between positive and negative affect (adjusted positive affect minus adjusted negative affect, plus a constant; Andrews & Robinson, 1991). Higher scores reflect a greater proportion of positive episodes reported, and more generally positive mood. The Memory Satisfaction Scale (MSS) was constructed for the study, and asks subjects to rate the extent to which they agree or disagree with six statements about overall memory adequacy, using a 5-point Likert scale. Mean rating (reversing scores for two of the items) is used as the index of overall satisfaction with memory. Higher mean scores reflect greater satisfaction. Since the MSS had not been used previously, reliability of the scale was estimated using Cronbach's α. Alpha for all 6 scale items was .884 (n=190). Reliability was not increased by deletion of any scale item.

Memory Rating Questionnaire.

The second questionnaire booklet, the Memory Rating Questionnaire or MRQ (See Appendix B), was based on a forgetfulness evaluation scale developed in pilot studies. The MRQ contained twenty one-sentence scenarios that depicted adult targets demonstrating various levels of everyday memory performance in different tasks and contexts. Six of the scenarios depicted good everyday memory, and were designated as remembering items. The remaining fourteen scenarios described everyday forgetfulness of varying degrees, and were designated as forgetting items. The scenarios were chosen from a pool of 54 items used in the pilot studies. They were selected to have substantial between-subject variability in their ratings, and cover a suitable diversity of the memory domains addressed in commonly used metamemory questionnaires (Gilewski & Zelinski, 1986).

Subjects provided two types of ratings for each scenario, using a 5-point scale in each case. Subjects rated the likelihood that an individual of a given age-range would display the type of performance described (1=not at all likely; 5=highly likely). Mean ratings across items are referred to here as "typicality" ratings, denoting what subjects think is typical performance for different targets. For the second type of rating, subjects

indicated the degree to which they felt that the performance described in the scenario (integrating its' type/domain, apparent frequency, and apparent context) could be construed as an indicator of more general memory abilities for a given type of target (1=not at all; 5=definite indicator). Mean ratings are referred to here as "diagnosticity" (Skov & Sherman, 1986) scores, in that they reflected the degree to which subjects treated an assortment of specific kinds of memory behaviours as potentially predictive or diagnostic of an individual's memory ability beyond the instances illustrated.

For all 20 items, subjects provided both types of ratings for each of two targets, described as the "average 25-30 year old", and the "average 65-70 year old". Target ages were chosen to correspond roughly to the anticipated modal ages of the two respective subject groups. Ratings for the two target age-ranges were made contiguously. In general, ratings of age-designated targets tend to be more discrepant in within-subject, as opposed to between-subject designs (Kite & Johnson, 1988; Kogan, 1979). Kogan (1979) has suggested that within-subject designs result in more pronounced age-stereotypes because they draw attention to the age dimension. In view of this, a within-subject design was used in the present study, not only to decrease the size of the required sample, but to increase sensitivity to potential subject-age by target-age interactions.

In order to reduce adventitious correlations between the two types of target ratings (typicality and diagnosticity), subjects provided one type of rating for all 20 items (for both targets), followed by ratings of the other type. The potential order-effect confound introduced by this manipulation was controlled for by having half of all questionnaires distributed contain one ratings sequence (typicality then diagnosticity) and half contain the opposite sequence. To further reduce subjects' deliberate comparisons between ratings given for a particular scenario, each type of rating also employed a different ordering of the same scenarios.

Differential evaluation of everyday forgetting in male and female targets by male and female subjects (Chaffin, Crawford, Herrmann, & Deffenbacher, 1985; Crawford, Herrmann, Holdsworth, Randall, & Robbins, 1989; Erber, Etheart, & Szuchman, 1992b), was controlled for by varying target-gender across packets distributed, and

across MRQ items within each packet. For each type of rating, half of all targets were male and half female. Target-gender was designated by means of gender-appropriate first names and pronouns, and distributed such that female targets were no more likely to show remembering or forgetting than male targets. For each specific scenario, target-gender was reversed for typicality ratings and diagnosticity ratings. For half of the questionnaires distributed, target-gender for any given item was opposite to that of the other half of the questionnaires. Pooled over subjects, mean ratings for each subject group, ratings-type, and memory scenario, were combined for both target-genders, yielding a more stringent, and generalizable, test of target and subject age-dependent ratings, relatively independent of target-gender or subject-gender influences.

Overall, then, for each scenario, a quarter of all questionnaires distributed requested typicality ratings for a female target first, and diagnosticity ratings for a male target second. Another quarter asked for typicality ratings of a male target first, and diagnosticity ratings for a female target second. The remaining half of the questionnaires distributed were identical, but requested the same ratings in the opposite order.

Everyday Memory Questionnaire.

The third questionnaire was a 28-item scale (see Appendix C) developed by Sunderland and Baddeley (Sunderland, et al., 1986), referred to here as the Everyday Memory Questionnaire (EMQ). Subjects are provided with moderately detailed one-sentence descriptions of everyday forgetting scenarios and indicate the approximate absolute frequency with which they have committed each of those slips during the previous six months using a 9-point scale (scored from 0 to 8 on a per-item basis). Total scores are obtained for all 28 items (out of a possible total of 224), with higher scores reflecting more frequent self-rated forgetting. In view of the rating scheme, and the tendency for scores to be positively skewed, Sunderland, et al., (1986) recommend use of a square root transformation to permit parametric analysis. Using this method, an average score of 3 on the scale - roughly once a month - would result in a mean scale score of approximately 9.17, with 0 and 14.97 being the minimum and maximum mean adjusted score obtainable.

Procedure

At the various recruiting opportunities, subjects who expressed interest or curiosity in the project were shown the materials, and explained that participation would be anonymous, and was entirely voluntary at any point. Subjects were informed that, upon accepting the materials, they were free to complete them in installments, with the proviso that individual questionnaires should be completed at one sitting, and that the materials should be completed in the order found inside the envelope. Materials were presented in the order of Personal Data Booklet, Memory Rating Questionnaire, and Everyday Memory Questionnaire.

Subjects were advised that they were free to discuss the contents of the questionnaires with friends or relatives, but were requested to do so only after completing them to avoid jeopardizing the validity of the results. Subjects were also informed that they could answer as much or as little as they wished to, but that complete data increased the validity of the study. Subjects were given a covering letter (see Appendix D) which outlined these features, and also provided a telephone number where the experimenter could be reached anonymously if the materials posed any difficulty. Research packets distributed at public places were returned by mail. Those distributed at classes were returned to a convenient central drop-off location.

Chapter Six

Results

Sample Characteristics

A substantial proportion of subjects in each group fell in the age range for which target ratings were to be made. For younger subjects, 44.1% fell between the ages of 25-30, whereas for older subjects, 34.6% fell in the ranges of 65-70 years. If subjects from 24 to 31 years, and 64-71 years of age are included, these percentages increase to 58.4 % and 46.7%, respectively. Thus, approximately half of all subjects were providing ratings for targets within a year or so of their own age, and for targets roughly within the age range of the other subject group. In this respect, target ratings by each age group, for their own age range, or the other group's age range, may be validly compared against each other.

Subjects rated themselves relatively well on measures of subjective well-being, and physical health (see Table 1). Overall, they were fairly happy ($\underline{M}$=2.11, where 3=very happy), and fairly healthy ($\underline{M}$= 4.13, where 5=very good health). Older subjects' self-ratings of health were significantly higher than younger subjects' (3.85 vs. 4.32), $\underline{F}(1,182)=21.43$, $\underline{p}<.0001$, $\eta^2=.105$, but neither group reported being happier than the other on a 3-point scale of stated happiness (Y=2.17, O=2.08). Analysis of overall affect balance, derived from adjusted difference scores (Andrews & Robinson, 1991), indicated that older subjects reported being in a more generally positive frame of mind, compared to younger adults (Y=5.45, O=6.25; higher scores reflect proportionately more positive affect), $\underline{F}(1,174)=8.41$, $\underline{p}=.004$, $\eta^2=.046$. Reported affect balance was unrelated to subject sex ($\underline{F}$'s <1 for both main effect and interaction with subject-age). Older subjects (M=3.24) tended to perceive less daily demand on their memory than did younger subjects (M=4.06), $\underline{F}(1,182)=27.48$, $\underline{p}<.001$.

The distribution of returned forms for each group is shown in Table 2. The percentage of each group receiving any given form, although not identical, still permitted overall comparable n's for any overall test of order of presentation (n=95 vs. n=89),

Table 2

Distribution of Returned Questionnaire Packets (Percentage of each group shown in parentheses)

	Ratings Order A		Ratings Order B	
	Gender Sequence 1	Gender Sequence 2	Gender Sequence 1	Gender Sequence 2
Young	22 (28.6%)	19 (24.7%)	15 (19.5%)	21 (27.3%)
Old	32 (29.9%)	22 (20.6%)	24 (22.4%)	29 (27.1%)
Total	54	41	39	50
Per cent of entire sample	29.3	22.3	21.2	27.2

and target gender (n=93 vs. n=91) influences on target ratings. Tests of these potential influences are discussed in the sections immediately below.

Order and Gender-Sequence Effects on the Memory Rating Questionnaire (MRQ)

In view of the use of four different forms of the MRQ (two gender sequences and two rating-type sequences), mean typicality and diagnosticity ratings were initially subjected to a repeated-measures ANOVA, incorporating one within-subject factor (target-age), and three between-subject factors (subject-age, order-of-ratings, target-gender) to evaluate any nonsubstantive effects introduced by these manipulations.

Main effects of order-of-ratings on typicality ratings were nonsignificant, $F(1,176)=.09$, as were all interactions. Pooling variance accounted for by main effect of order and all seven sources of interaction with order (including interactions with gender-sequence), explained 3.58% of the overall variation in typicality ratings. Variations between the two alternate target-gender forms had a small, but significant main effect on typicality ratings, $F(1,176)=4.89$, $p=.028$, $\eta^2=.029$, stemming from slightly higher ratings, overall, in one of the two versions of the questionnaire (M's of 2.89 vs. 2.99). Pooling all main effects and interactions with gender sequence accounted for 5.94% of the observed variation in typicality ratings. Closer inspection of means for individual items indicated that differences between the two forms did not occur in any particular predictable way. In some cases, male targets were rated somewhat more likely to forget or remember in certain ways than female targets, whereas in other cases the reverse occurred. This complex interaction between target-gender and type of memory behaviour was similar to findings from previous reports (Chaffin, et al., 1985; Crawford, et al., 1989; Erber, et al., 1992b). Since both forms of the items contained a combination of male and female targets, overall differences between the two forms seem to be due to an adventitious pairing of certain behaviours and target-genders. The absence of any interaction between alternate target-gender forms and any of the other main factors suggests this as a plausible interpretation.

Repeated-measures ANOVA of overall diagnosticity ratings, employing the identical design (target-age by subject-age by order-of-ratings by target-gender), revealed

no significant main effects of, or interactions with, either order-of-ratings, or target-gender. Pooling main effects, and all possible sources of interaction, explained 2.82% of the variance when gender-sequence was considered, and 5.25% of the variance when order-of-ratings was considered (Note: any interactions containing both of these factors were included in *both* of the tabulations).

The absence of any substantial order effects is treated here as justification for the collapsing of the two alternate order forms of the MRQ together in subsequent analyses, and deletion of separate forms counterbalancing rating-order in subsequent studies. The presence of unsystematic target-gender effects is considered here as grounds for pooling both target-gender forms in analyses, while still retaining alternate target-gender forms in subsequent studies.

Beliefs About Memory and Aging

Beliefs about overall level of memory functioning in targets were indexed by a mean score for all twenty MRQ items, with items depicting successful remembering reverse-scored. Scored in this manner, higher mean overall scores reflect poorer anticipated performance in the targets. Mean typicality ratings are shown in Table 3. A second repeated-measures ANOVA of the typicality ratings, deleting the target-gender and order-of-ratings factors, indicated that older targets were generally rated as having a poorer memory than younger targets ($\underline{M}$'s of 2.63 vs. 3.24), $\underline{F}(1,182)=266.2$, $\underline{p}<.0001$, $\eta^2=.594$. Although the two subject groups gave virtually identical mean ratings for older targets ($\underline{M}=3.25$ for young subjects, $\underline{M}=3.24$ for old subjects), old subjects viewed younger targets more positively (lower mean ratings) than young subjects did (2.79 vs. 2.51). This was reflected in a weaker, but still significant, overall main effect of subject-age on ratings, $\underline{F}(1,182)=8.72$, $\underline{p}=.004$, $\eta^2=.046$, and a significant subject-age by target-age interaction, $\underline{F}(1,182)=12.31$, $\underline{p}=.001$, $\eta^2=.063$. Separate univariate analysis of ratings for young targets indicated a significant difference between the two age groups, $\underline{F}(1,182)=23.27$, $\underline{p}<.0001$, $\eta^2=.113$. As might be anticipated from these results, older subjects evidenced more pronounced stereotypes about age-related decline in everyday memory performance than did younger subjects, as indexed by the

Table 3

Means typicality scores broken down by target and type of behaviour

	Young Subjects		Old Subjects	
	Young Target	Old Target	Young Target	Old Target
Remembering				
M	2.87	2.53	2.72	2.35
SD	0.65	0.65	0.66	0.62
Forgetting				
M	2.64	3.16	2.19	3.06
SD	0.45	0.45	0.45	0.63
Overall				
M	2.79	3.25	2.51	3.24
SD	0.38	0.37	0.37	0.47

Note: For REMEMBER-typicality scores, higher scores denote better anticipated target performance. For FORGET-typicality scores, and OVERALL-typicality scores, higher scores denote worse anticipated target performance.

difference between their ratings of young and old targets ($\underline{M}$=0.47 for young group, $\underline{M}$=0.72 for old group), $\underline{F}(1,182)=12.31$, $\underline{p}=.0006$, $\eta^2=.063$.

Target-age effects were also observed in the case of mean ratings for all twenty diagnosticity items. Older targets' overall memory behaviour was rated as significantly more indicative of general memory ability ($\underline{M}$=2.85 for young targets, $\underline{M}$=3.11 for old targets), $\underline{F}(1,182)=43.42$, $\underline{p}<.001$. Unlike typicality ratings, however, main effects of subject-age were nonsignificant, $\underline{F}(1,182)<1$, and subject-age interacted only modestly with target age, $\underline{F}(1,182)=4.51$, $\underline{p}=.035$. The interaction stemmed from the tendency of older subjects to give slightly higher diagnosticity ratings to old targets, and slightly lower ones to young targets (see Table 4). In general, then, the prediction that older targets' everyday memory would be perceived as poorer and more reflective of underlying ability was supported.

The relationship between expectations of targets and interpretation of their behaviour was examined by means of simple correlations (see Tables 5 and 6). For older subjects, more pronounced stereotypes of age-related memory-decline (indexed by the difference between mean typicality-ratings for young and old targets) predicted higher diagnosticity ratings for older targets, $\underline{r}(107)=.427$, $\underline{p}<.001$. This was true whether one examined trait-like ascriptions for older targets' remembering behaviour, $\underline{r}=.362$, or forgetting behaviour, $\underline{r}=.430$. These particular relationships supported the prediction made at the outset: that expectations of decline are associated with increasing attribution of older adults' memory behaviour to some ability-like memory trait. That increasing age-stereotypes were not associated with diagnosticity-ratings for *young* targets lends weight to the view that perceptions of the trait-like basis for young targets' memory behaviour may not come from an implicit developmental theory, whereas perceptions of older targets' behaviour do.

In the case of younger subjects, although stereotypes of age-related memory-decline were evident, these stereotypes were largely unrelated to perceptions of older targets' overall memory behaviour, $\underline{r}(77)=.200$, $\underline{p}=.081$. This suggests that older adults may be more likely to integrate social-stereotypes of aging into some more general

Table 4

Mean diagnosticity scores broken down by target and type of behaviour

	Young Subjects		Old Subjects	
	Young Target	Old Target	Young Target	Old Target
Remembering				
M	3.00	3.16	2.84	3.18
SD	0.64	0.66	0.79	0.72
Forgetting				
M	2.89	3.06	2.76	3.09
SD	0.61	0.57	0.70	0.62
Overall				
M	2.93	3.10	2.79	3.12
SD	0.58	0.55	0.70	0.62

Table 5

Correlations between typicality and diagnosticity scores for young subjects

	Diagnosticity scores					
	Rem Yng	Rem Old	For Yng	For Old	All Yng	All Old
Typicality Scores						
Remember						
Young	-.027	.010	-.104	.007	-.090	.003
Old	-.091	.064	-.053	-.020	-.008	.008
Forget						
Young	.056	.012	.056	-.098	.052	-.071
Old	.078	.128	.079	.200	.088	.193
Overall						
Young	.062	.006	.010	-.085	.090	-.061
Old	.021	.077	.095	.181	.080	.161
Difference (Y-O)	-.038	.064	-.007	.241*	-.011	.200

Two-tailed; * $p < .05$, ** $p < .01$, *** $p < .001$.

Note: REM-diagnosticity scores are mean scores for MRQ-remembering items. FOR-diagnosticity scores are those for MRQ-forgetting items. For REMEMBER-typicality scores, higher scores denote better anticipated target performance. For FORGET-typicality scores, and OVERALL-typicality scores, higher scores denote worse anticipated target performance.

Table 6

Correlations between typicality and diagnosticity scores for old subjects

	Diagnosticity scores					
	Rem Yng	Rem Old	For Yng	For Old	All Yng	All Old
Typicality Scores						
Remember						
Young	.116	.259[b]	.062	.235[a]	.083	.255[b]
Old	-.038	.026	-.130	.120	-.103	.093
Forget						
Young	-.059	-.120	-.093	-.078	-.085	-.097
Old	.010	.249[a]	.026	.413[c]	.022	.375[c]
Overall						
Young	-.111	-.238[a]	-.113	-.190	-.117	-.217
Old	.023	.223[a]	.073	.339[c]	.059	.315[b]
Difference (Y-O)	.097	.362[c]	.142	.430[c]	.133	.427[c]

Two-tailed; *a* $p < .05$, *b* $p < .01$, *c* $p < .001$.

Note: REM-diagnosticity scores are mean scores for MRQ-remembering items. FOR-diagnosticity scores are those for MRQ-forgetting items. For REMEMBER-typicality scores, higher scores denote better anticipated target performance. For FORGET-typicality scores, and OVERALL-typicality scores, higher scores denote worse anticipated target performance.

explanation of behaviour in their age group. The observed difference in the magnitude of correlations for older and younger subjects should be qualified, however, by the observation that older subjects demonstrated somewhat greater variability than did younger subjects, for the typicality and diagnosticity ratings that were most strongly correlated. The difference between this correlation coefficient, and that obtained by older subjects, approached, but did not attain, statistical significance, $z_r = 1.67$, two-tailed $p = .096$, using Fisher's z-to-r test (Ferguson, 1971).

Beliefs about remembering and forgetting.

Mean typicality ratings for forgetting versus remembering items provided some insight as to what subjects generally construed as most and least typical classes of memory behaviour for each target-age. An overall MANOVA, employing both groups combined, followed by specific post-hoc contrasts, indicated that subjects considered forgetting among older targets to be the most likely occurance. Mean ratings for the likelihood of older targets forgetting ($M = 3.10$) were significantly higher than all other types of typicality ratings, $F(1,182) = 13.16$, $p < .001$. Ratings for remembering among younger targets ($M = 2.78$), in turn, were significantly higher than ratings for remembering by older targets ($M = 2.42$) and forgetting by younger targets ($M = 2.38$), $F(1,182) = 8.05$, $p < .001$. The latter two types of ratings did not differ from each other, $F < 1$. Overall, subjects perceived older targets as more likely to forget than to remember, and younger targets as significantly more likely to remember than to forget. Pooled over both age-groups, subjects' age-stereotypes for forgetting behaviours (M difference score for old-young targets $= .725$) were more pronounced than those for remembering behaviours ($M = .359$), $F(1,182) = 212.93$, $p < .001$, $\eta^2 = .53$.

Summary.

As evidenced by their expectations of typical performance in twenty different exemplars of everyday remembering and forgetting, both groups had expectations about age-related decline in everyday memory performance, and similar expectations about older targets. However, older subjects displayed more differentiated expectations, stemming from their more positive view of youth, and primarily from their expectations

of little forgetting in younger targets. Although individual everyday memory behaviours were not generally treated as especially indicative or nonindicative of overall memory functioning, individual memory behaviours in older targets were seen to be indicative of memory functioning to a greater degree than the same memory behaviours in young targets. Older and younger subjects offered generally similar diagnosticity ratings in the case of each target groups, however, older subjects were slightly more differentiated in their ratings overall.

Self-Rated Forgetfulness

Examination of individual item scores indicated that most subjects acknowledged forgetting for comparatively few of the memory slips illustrated. Subjects only offered ratings of once a week or more for an average of 1.89 (s.d.=2.83) of the 28 items. Such generally low ratings are comparable to those reported by Sunderland, et al. (1986). Young subjects rated themselves as more forgetful than did older subjects ($\underline{M}$=6.30 for young, $\underline{M}$=5.13 for old), $\underline{F}(182)=21.87$, $\underline{p}<.0001$, $\eta^2=.107$.

Inspection of zero-order correlations (shown in Table 7). indicated that mean EMQ scores were significantly related to a variety of background and demographic variables for both old and young, such as affect balance, happiness, sex, and education. In view of these associations, a second between-groups ANCOVA was carried out, using the demographic (sex, education), and affective/well-being variables (health, affect balance, happiness) as covariates. When these variables were statistically controlled, older subjects still reported significantly less forgetting than did younger subjects, $\underline{F}(1,171)=15.32$, $\underline{p}<.001$, $\eta^2=.072$.

Although subjects who tended to rate targets more likely to be forgetful also tended to report more forgetting in themselves (see Table 7), examination of the relationship between subjects' age-*stereotypes* of memory-decline (i.e., typicality difference-scores for old versus young targets) and their EMQ scores indicated that perceptions of own forgetfulness were unrelated to age-stereotypes in either young, $\underline{r}(77)=-.128$, $\underline{p}=.27$ or old subjects, $\underline{r}(107)=.141$, $\underline{p}=.15$. This was also true when stereotype scores consisted of only typicality-ratings for forgetting items ($\underline{r}=.109$ for old,

Table 7

Correlations between self-rated frequency of forgetting (EMQ) scores and other subject variables

	Younger Subjects	Older Subjects
Education	.0638	.3029 **
Sex	.0486	-.1989 *
Memory satisfaction	-.4916 ***	-.3055 ***
Typicality - Young	.3452 **	.1547
Typicality - Old	.2125	.2823 **
Diagnosticity - Young	.1063	.1560
Diagnosticity - Old	.0137	.1791
Affect balance	-.3084 **	-.0844
Health	-.1440	-.1206
Happiness	-.2549 *	-.0333
Demands	.0783	-.1115

Two-tailed; * $p < .05$, ** $p < .01$, *** $p < .001$.

r=-.115 for young). The failure to obtain negative age-differences in EMQ scores, and the observation that they were unrelated to subjects' stereotypes supports another of the predictions made at the outset: memory self-report measures which do not appeal to age-schemas or use idealized anchors will be unlikely to show negative age-differences or correlate with indices of their implicit theories.

Memory Satisfaction

Overall, subjects indicated moderate satisfaction with their memory, with a mean scale score of 3.35 (s.d.=.85; scores higher than the scale midpoint of 3.0 indicate increasing satisfaction). The two age groups did not differ with respect to memory satisfaction, offering mean satisfaction ratings of 3.31 and 3.38, $F(1,182)=0.35$. Memory satisfaction scores were inversely correlated with EMQ scores in both age groups, $r(77)=-.492$, $p<.001$ for young, $r(107)=-.306$, $p=.001$ for old (see Table 8), such that individuals who reported less daily forgetting, tended to rate themselves as more satisfied with their memory overall. The difference between these two correlations was not significant, $z_r=1.453$, $p=.147$. Memory satisfaction scores were also significantly related to affect balance scores for both young, $r(76)=.261$, $p=.023$, and old, $r(102)=.301$, $p=.002$, and to self-rated happiness for both young, $r(77)=.347$, $p=.002$, and for old, $r(106)=.227$, $p=.019$. In view of the difference between old and young subjects in both EMQ scores and affect-balance, and their observed relationship to memory satisfaction, potential group differences in MSS scores were re-examined. Analysis of covariance indicated that when group differences in self-reported forgetting were statistically controlled, age groups still did not differ in reported memory satisfaction, $F(1,183)=1.632$. When both self-reported forgetting and affect-balance were statistically controlled, group differences in MSS scores approached, but did not attain, significance, $F(1,174)=2.861$, $p=.093$.

The hypothesis that, at an individual-difference level, adherence to a more entity-like view of memory would be associated with decreased satisfaction with memory was initially tested by examining the zero-order correlation between memory satisfaction ratings and diagnosticity ratings for own age group. Younger subjects who treated

Table 8

Correlations between memory satisfaction (MSS) scores and other subject variables

	Younger Subjects	Older Subjects
Education	.2246	-.2261 *
Sex	-.0717	-.0685
Typicality - Young	-.1276	.1368
Typicality - Old	-.1040	-.0747
Diagnosticity - Young	-.2443 *	-.1585
Diagnosticity - Old	-.2327 *	-.1765
Affect balance	.2609 *	.3012 **
Health	-.0608	.2124 *
Happiness	.3466 **	.2273 *
Daily memory demands	-.1989	.2805 **

Two-tailed; * $p < .05$, ** $p < .01$, *** $p < .001$.

the overall memory behaviour of their age group as more diagnostic tended to be somewhat less satisfied with their memory, $r(77)=-.244$, $p=.032$. This was not the case, however, when older subjects' MSS ratings and diagnosticity ratings of older targets were examined, $r(107)=-.177$, $p=.069$. The possibiity that memory satisfaction may be primarily a function of how older individuals interpret forgetting was tested by examining MSS scores and diagnosticity of forgetting specifically. Again, the correlation coefficient observed for older subjects was nonsignificant, $r(107)=-.145$, $p=.14$.

A second analysis examined the correlation between MSS scores and subjects' diagnosticity-*stereotypes* (i.e., how differently they judged the diagnosticity of old and young targets). This too failed to reveal any relationship between perceptions of an increased trait-like basis for everyday memory behaviour in older targets, and satisfaction with own memory in the case of either young, $r(77)=.048$, or old subjects, $r(107)=.002$. Finally, in view of the substantial age-differences in self-rated forgetting, and their relationship to MSS scores, the partial correlation between diagnosticity-ratings and MSS scores was examined, after statistically controlling for EMQ scores. This too failed to reveal any significant relationship between the inferred properties of targets' memory behaviours and expressed satisfaction in older subjects.

Chapter Seven

Discussion

Implicit Theories of Age-Related Memory Decline

Consistent with previous studies that used global ratings (Cavanaugh, et al., 1983; Heckhausen, Dixon, & Baltes, 1989; McFarland, et al., 1992), quantitative estimates of memory performance (Hendrick, Knox, Gekoski, & Dyne, 1988), more domain-specific frequency of forgetting ratings (Ryan, 1992), and confidence ratings (Erber, Etheart, & Szuchman, 1992a, 1992b), older targets in the current study were generally seen to have poorer memory performance than younger targets. This was true regardless of the respondent's age. This finding provides some initial validation for the MRQ as an instrument for measuring adults' age-stereotypes of memory.

Although target-age discrepancies in anticipated memory performance were most evident for instances of forgetting, they were also in evidence for instances of remembering. Subjects of both age ranges anticipated successful performance to be significantly less likely in older targets than in younger targets. In this regard, Study 1 provides some of the first evidence examining age-stereotypes of memory in the context of successful "peak" performance as well as unsuccessful performance. Erber, et al. (1992a, 1992b) found that both older and younger subjects did not demonstrate differential perceptions of young and old targets who were successful remembers. On the surface, these data appear to be incongruent with those of Study 1. However, where Erber, et al., inquired about subsequent performance, based on an elaborate description of successful targets in action, the current study merely asked about the likelihood of different-aged targets behaving in the manner described. Subjects may still have differential *basic* expectations of young and old individuals, while at the same time not distinguishing between subsets of individuals from those groups who show similar exceptional performance. In this regard, Erber, et al.'s data do not contradict those of Study 1, so much as illustrate an instance in which individuals may set aside age-stereotypes, perhaps because different sorts of attributions come into play when perceiving particularly good performance (Green, 1984).

On average, more pronounced age-stereotypes of overall memory decline were voiced by older subjects, rather than younger subjects. Rothbaum (1983) obtained a similar result, using ratings of personality characteristics in young and old targets. Perhaps more importantly, the stereotypes observed in the current study were more pronounced by virtue of older adults' more positive expectations about young people. This is congruent with suggestions made by Cavanaugh (1987), and with findings by Ryan (1992). Ryan found that older subjects gave more differentiated age-dependent ratings of targets' memory, rating "typical 25 year-old" targets more positively than did young subjects, but not differing in ratings of older targets. Study 1 used a much larger sample of older adults (n=107 vs. n=37), and a smaller sample of young adults (n=77 vs. n=179), than Ryan did; however, the outcome is roughly the same. Ryan's subjects gave relative frequency-of-forgetting ratings for different-aged targets on twenty-four SIME items, whereas subjects in Study 1 gave likelihood ratings for exemplars of both remembering and forgetting for both male and female targets. Despite the similarity between the two methods (one sentence descriptions of similar memory domains, different-aged targets), there is sufficient variation (target-gender manipulations, inclusion of remembering items, within vs. between-subject methods, type of rating) to suggest that exaggerated estimates of young targets' performance by older subjects is a fairly robust and dependable finding. Such subject-age differences in views of youthful performance are congruent with suggestions by Cavanaugh (1987), and others (Kahn, et al., 1975; Ryan, 1992), that older adults' more negative memory self-evaluations may be mediated by an overestimation of the relationship between memory and aging.

Nevertheless, it is important to note, that although younger subjects may have expressed more conservative views about the memory functioning of their own age group in Study One, old and young subjects' beliefs about the general *substance* of what happens to memory over the lifespan (i.e., the fact that it is seen to decline and become more trait-like) were congruent. That individuals of widely varying ages (18-82) endorsed fairly similar notions, particularly in their impressions of older targets, suggests that this tendency emerges out of culture-wide stereotypes about aging and memory

(Ross, 1989). On the basis of this data, any putative tendency by older adults to overinterpret memory slips (Riege, 1983; Zarit, et al., 1981), or at least make more dispositional attributions about memory behaviour, is clearly preceded by the establishment of relevant beliefs about aging, well before individuals *become* elderly.

Remembering versus forgetting.

The exaggerated ratings of young targets by older subjects were specific to forgetting and did not generalize to ratings for remembering. Ideally, successful remembering is simply the inverse of forgetting, implying that whatever subject-age trends are evident for forgetting items ought to also be true for remembering items. Several factors should be taken into considerations, however. First, mean ratings for remembering scenarios were derived from 6 items as opposed to 14 for forgetting scenarios, yielding a potentially less reliable measure. Separate reliability analysis for both forgetting and remembering items provided support for this. Individual Cronbach's α's ranged from .49 to .65 (over the two subject groups and two target groups) for remembering items, and ranged between .77 to .82 for the forgetting items. A second factor concerns how subjects broach the actual content of forgetting and remembering items, and the ease with which the two types of judgments may be made. Many of the remembering items depict recalling an entire set of events (e.g., all of a certain set of phone numbers), without ever defining how big the set is. Subjects may therefore find it more difficult to evaluate, or agree on, the degree of success being shown by targets, compared to instances of failures. Consistent with this, subjects tended to show somewhat less variability in their ratings of forgetting items than in their ratings of remembering items. Finally, social-schemas of age-related decline may be more effectively evoked by judgments of forgetting than by judgments of remembering. Consistent with this, differences between mean typicality ratings for the two target ages, tended to be smaller for remembering items than for forgetting items, both for young subjects (.339 versus .521) and older subjects (.373 versus .871).

Diagnosticity ratings.

Support was provided for the hypothesis that subjects would perceive the memory behaviour of older targets as more reflective of a general underlying memory ability, compared to younger targets. Although effects of target-age were not as pronounced as they were for typicality ratings, mean diagnosticity ratings given for older targets were significantly higher than those given for younger targets.

It should be noted that subjects treated the behaviours of older targets as more information-laden even though they were asked to make neutral judgments that should not necessarily lead to an age-bias (such as evidence of dementia, or "difficulty" with memory). In this regard, the data provide evidence that adults may distinguish the memory behaviour of young and old individuals at a more basic level than that demonstrated in those studies where subjects evaluated behaviour as an index of mental difficulty (Erber et al., 1990a, 1990b). In contrast to previous studies (Erber, et al., 1990; Weaver & Lachman, 1990) in which it was unclear whether subjects' attributions for target performance were to a domain-specific or general memory ability, subjects in the current study explicitly indicated that they could more readily generalize from memory behaviours in one specific domain to overall memory performance for older targets than they could for younger targets. This was true whether the behaviour in question was successful remembering or forgetting. In a sense, this may represent a foundation, or substrate, for other, more affectively-laden evaluations, such as degree of upset, or concern over incipient dementia. It is argued here, on logical, rather than empirical grounds, that "over-reaction" to isolated memory lapses may occur only if one first interprets the lapse as potentially informative or diagnostic of a broader spectrum of behaviour. Over-reactions to memory lapses, where they occur, are likely the outcomes of an evaluative process (Cavanaugh, 1987) that takes, as its' starting point, the basic informational value of everyday behaviours; in particular, the differential informational value of memory-based behaviour as a function of one's own, or a target's, age. Behaviour perceived as uninformative should evoke less alarm, even when it is unsuccessful.

Conceivably, younger adults' belief that the isolated memory lapses of their age group don't tell them as much about the rememberer, may potentially "insulate" them from the type of reaction that an older adult might show under the right circumstances (although clearly there will be individual differences). This view is supported, to some extent, by studies in which younger adults see their own performance (Prohaska, et al., 1984; Weaver & Lachman, 1990), and subjects see the performance of young targets' (Erber, et al., 1990a, 1990b; Erber & Rothberg, 1991) as more likely to be due to transitory, remediable factors such as inattentiveness or lack of effort. In the absence of useful psychometric indices of individual reaction to everyday slips, however, this view obviously remains purely speculative.

The relationship between typicality and diagnosticity.

Further support for the role that social-schemas of age-related decline play in subjects' perceptions of adult memory behaviour may be provided by examining the interrelationship between typicality and diagnosticity ratings. A simple attributional interpretation would predict that behaviours considered more typical or normative of a group should be perceived as less informative about individuals (Kelley, 1967). Within the context of Study One, this would imply that forms of memory behaviour receiving higher typicality ratings should receive lower diagnosticity ratings. To some extent, in terms of overall mean typicality and diagnosticity ratings, pooled over subjects, this was observed; remembering was seen as less typical, but more diagnostic, than forgetting.

By virtue of comparing two target-ages, though, subjects are implicitly evaluating targets in terms of their *group* membership, rather than just their individual characteristics (Kite & Johnson, 1988). This is underscored by the absence of any background information about targets other than their age-group membership, as well as limited information about their recall history for the specific domain illustrated. One would predict, then, that typicality ratings would be *positively*, rather than inversely, related to diagnosticity ratings, inasmuch as what is seen as most typical for a group would be construed as a reflection of that group trait when individual members of that group behave in that manner. For example, the older adult who appears highly forgetful

in some manner would be seen as reflecting an age-related memory trait by someone who sees older adults as more likely to be forgetful than younger adults. Conversely, where effective remembering is seen as highly typical of young persons, a young target who demonstrates effective remembering ought to be judged as reflecting a "young" trait. That is, the memory behaviours rated most typical for *each* target-age should also receive the highest diagnosticity ratings. This general result was not obtained. Even though subjects shared the same basic stereotypes about age-related memory decline, typicality scores were essentially unrelated to diagnosticity scores for young targets in both subject groups. Instead, typicality scores for different-aged targets were generally predictive only for diagnosticity scores *by* older subjects *for* older targets. Most noticeably, higher typicality scores for those behaviours that subjects considered most typical of each target-age predicted more trait-like consideration of older target-behaviours.

To some extent, the absence of any typicality-diagnosticity relationship for younger targets makes sense. If subjects see the memory performance of young targets as due to transitory, remediable factors, and less trait-based, as suggested by diagnosticity scores from Study 1, and attribution ratings from other studies (Erber, et al., 1990a, 1990b; Erber & Rothberg, 1991; Prohaska, et al., 1984; Weaver & Lachman, 1990), then subjects may not be any more likely to attribute demonstrated performance to a group trait as a function of the anticipated level of performance. On the other hand, if the memory behaviour of older targets is seen as more likely to be trait-based, any information which supports the differential trait characteristics in older targets (such as perceiving bigger target-age differences in performance) should be predictive of increasing trait-like attributions for older targets.

Young subjects' failure to demonstrate such a response pattern for older targets is perplexing. As a group, they share similar age-stereotypes with older adults regarding expected memory behaviour, and the diagnosticity of that behaviour. On an individual basis, however, in spite of similar trait-like ascriptions for the memory behaviour of older targets, they show little evidence of incorporating their expectations about older targets into those ascriptions.

Some portion of the failure to observe a significant relationship between typicality and diagnosticity may be attributed both to lower statistical power in the case of young subjects (as a function of somewhat smaller sample size), and to slightly greater variability in the ratings given by older subjects. For example, the relationship between typicality and diagnosticity ratings for forgetting in older targets was relatively robust for older subjects (r=.413). Although in the expected direction (r=.200), it was substantially smaller, and nonsignificant, for young subjects. Older subjects demonstrated greater variability, in the case of both variables, even though their mean ratings did not differ from young subjects. A second possibility is that individual differences in diagnosticity ratings by younger adults may be more a function of personality variables, whereas it may be more a function of belief/attitudinal variables for older adults. The measures employed in Study 1 do not permit this particular hypothesis to be tested.

Whether the age-difference in typicality-diagnosticity relationships is due to methodological factors, or to more substantive age-related factors, the typicality-diagnosticity relationship observed for the older subjects sheds some limited light on the social cognition underlying older individuals' reactions to their own memory behaviour. Culture-wide stereotypes about age-related memory decline, and individual differences in adherence to those stereotypes (i.e., individuals' implicit theories about memory), may provide a foundation for interpretation of memory behaviour, by leading individuals to make group-trait ascriptions for memory behaviour of older individuals, and conceivably, for themselves.

The data from Study 1 are limited, however, in that they do not permit inferences concerning the relationship between age-stereotypes of memory decline and trait-like ascriptions for one's *own* behaviour. Moreover, although typicality and diagnosticity ratings for older targets are somewhat related, the design does not permit direct testing of the hypothesis that memory behaviours of different-aged targets are necessarily attributed to their age.

Memory Self-Description

Frequency of everyday forgetting.

The observed age-pattern of self-reported frequency of everyday forgetting was inconsistent with studies that have noted reliable age-related increases in self-reported forgetfulness (Cavanaugh, et al., 1983; Crook & Larrabee, 1990; Cutler & Grams, 1988; Gilewski, Zelinski, & Schaie, 1990; Ryan, 1992). However, numerous previous reports have also found less forgetting among older subjects, such as observed here (Erber, Szuchman & Rothberg, 1992; Sunderland, et al., 1983), or found that age-differences in reported forgetting were confined to specific domains, rather than being general (Cavanaugh, 1987; Cavanaugh & Poon, 1989; Chaffin & Herrmann, 1983). These findings are consistent with the prediction that age-differences in self-reported memory functioning would not be observed when the instrument employed lacks idealized anchors. In this case, the EMQ (Sunderland, et al., 1986) simply requested absolute frequency estimates of specific forgetting behaviours, without reference to any age-related, or other, performance standard.

The rather surprising aspect of these findings is that, whereas older and younger subjects agreed on the existence of age-related memory decline, and also tended to rate others of their age group somewhat proportionately to how they rated themselves, the old still reported *less* forgetting than did the young, even when factors that may have altered self-reported forgetting were statistically controlled. Logically, if subjects draw estimates of their own forgetting from estimates or social-schemas of forgetting for similar individuals (or, alternatively, make inferences about others from self-estimates), then self and other estimates ought to be related in magnitude as well as direction. This did not occur, however.

There are several possible explanations. A recent paper by Heckhausen and Krueger (1993) suggests that this may be related to an intrinsic aspect of how different-aged adults prefer to see themselves, relative to other similar-aged people. Heckhausen, et al., (1989) noted that "normative conceptions" (culture-wide implicit theories) of psychological change over the lifespan incorporate notions of increasing losses and

decreasing gains in later adulthood. Suggesting that such anticipated trajectories might play a role in lifespan trends in social comparison processes, Heckhausen and Krueger (1993) asked young, middle-aged, and older adults to provide estimates of degree of developmental gains and losses for themselves and others over 7 decades of life (20's to 80's). Older adults showed increasing discrepancies between what they expected for themselves, and for others, in the later decades. The older the decade they were rating, the more older adults tended to see their own development as somewhat more positive (or at least, less negative) than that of others. In contrast, younger adults tended to see an identical developmental trajectory for themselves and others at later ages. Heckhausen and Krueger suggested that this reflects a lifespan trend towards "self-enhancement" by allowing increased opportunity for downward comparison later in life. In effect, since all age groups expect increasing losses in later life, older individuals could maintain self-esteem by seeing the average peer as worse off than themselves.

In the case of Study 1, Heckhausen and Krueger's interpretation would predict that older individuals' self-estimates of forgetting could, at the same time, be predicted by what subjects feel is typical for older individuals, yet be more positive than estimates for same-aged individuals (thus maintaining self-esteem). In effect, the reasoning is "All people forget more as they get older, but I haven't declined as much as that". The absence of estimates for both self and others on the same measure (i.e., MRQ typicality ratings for self, as well as young and old targets), however, makes it is difficult to argue this case convincingly. Ryan and See (1993) asked younger and older subjects to provide self-ratings and ratings for different-aged targets on several scales from Dixon and Hultsch's (1983) MIA, and also observed that self-ratings were somewhat better than those for the oldest targets. However, few (16 out of 224) of Ryan and See's subjects were in the age range of the oldest targets being rated (65 and 85 yrs), and may simply have offered more positive self-ratings because they saw themselves as having better memory functioning than much older individuals.

In addition to potential age-differences in social comparison processes, there are other factors intrinsic to the subjects, which may influence the degree and direction of

age differences in self-reported forgetting. Morris (1984) has noted that highly forgetful individuals may be less likely to recall their forgetting. Since there is little a priori reason to suspect that older subjects are likely to demonstrate significantly better everyday memory functioning than young subjects, they may simply have rated themselves less forgetful by remembering less of their forgetting. Congruent with this view, Reisberg, Ferris, Borenstein, Sinaiko, de Leon, and Buttinger, (1986) have noted that early-stage dementing individuals may offer more positive self-ratings of forgetting than non-dementing elderly. In view of the instructional demands of the questionnaires, it is doubtful whether the elderly sample in Study 1 constitute such a group.

Finally, less self-reported forgetting may also result from older, retired, adults simply having either less opportunity to forget, relative to younger adults engaged in education or employment (Hammer, 1992), or less opportunity, in their daily lives, for others to draw memory slips to their attention (Ruisel, 1985). Thus, although diminished memory capabilities may be reflected in an equal or greater proportion of such opportunities resulting in forgetting, the absolute number of such occasions may well be lower in older individuals. In a sense, age-differences in EMQ scores may be reliable, accurate, and appropriate, but misleading without base-rate information about individuals' everyday activities.

Overall memory satisfaction.

A number of studies have examined self-ratings of global memory functioning (e.g., Crook & Larrabee, 1990; Cutler & Grams, 1988; Gilewski, et al., 1990), however, no published studies have attempted to deliberately distinguish *satisfaction* with that level of memory functioning from its' *estimation* or description in terms of frequency of memory slips or overall capacity. The memory satisfaction scores obtained here must be considered in the absence of prior test-retest reliability or validity data on this measure, but the significant relationship with self-rated forgetfulness, as well as limited relationships to measures of affective-status and subjective well-being, for both young and old groups, suggest that MSS scores have some face validity as an index of individuals' feelings about their everyday memory functioning.

The current data suggest that, as a group, older adults are no more dissatisfied with their memory than are younger adults. Cutler and Grams (1988), noted in their survey sample that, although the proportion of individuals reporting memory problems increased with age (over approximately the same age range covered in older subjects in the current study), there were still only 15% of older adults, overall, who viewed their memory as problematic to any degree. The memory satisfaction data reported here are roughly congruent with Cutler and Grams' observations. Only 25.2% of the older sample in the current study had mean scores less than the scale mid-point. Only 10.3% gave mean ratings of 2.0 or less (corresponding proportions for young were 29.9% and 11.7%).

To some extent, the common assertion that older adults are generally more perturbed or sensitive about their memory (Kahn, et al., 1975; West, et al., 1984; Zarit, et al., 1981) may be biased by the kinds of research samples employed by various researchers, and the recruiting techniques employed (Scogin, 1985). Conceivably, the recruiting sites and techniques employed in Study 1 (public settings) may have tended to recruit a broader representation of older subjects. As noted earlier, affect-balance scores were significantly higher for older subjects, suggesting that low levels of depression (a common predictor of memory complaint; Kahn, et al., 1975; O'Hara, et al., 1986; Scogin, et al., 1985; West, et al., 1984; Williams, et al., 1987; Zarit, 1982) existed among older subjects in the current sample.

Although young and old subjects rated the individual memory behaviours of their respective age groups as differentially informative about overall memory, these differences in perception were not translated into either group or individual differences in satisfaction with memory as had been predicted. These data also run contrary to expectations of greater discontent with memory stemming from overinterpretation of memory slips by older adults (Hulicka, 1982; Zarit, et al., 1981).

The failure to find the expected age differences in memory satisfaction may reflect a number of things. First, the absence of age differences may simply reflect the measurement shortcomings of the instrument itself. Psychometric considerations

notwithstanding, the failure to observe age differences may also stem from other group differences, such as affect-balance or reported forgetfulness. As noted, however, age differences in MSS scores failed to emerge, when both of these group differences were statistically controlled. The fact that MSS scores for each age group were were based on significantly different amounts of self-rated forgetting, and also tended to be predicted by EMQ scores somewhat (though not significantly) more noticeably for young adults than they were for older adults (R^2 of 24% and 9%, respectively), suggests that the two age groups may differ in how they perceive their everyday memory behaviour, and ultimately, what processes lead to being satisfied or dissatisfied with their memory. Were memory satisfaction merely a question of the amount of forgetting individuals perceive themselves as committing (especially in comparison to others like themselves; Festinger, 1954), older subjects ought to rate themselves as relatively *more* satisfied with their memory than younger subjects, since they report less forgetting. This was not the case, however. In this regard, the data indirectly suggest that older adults don't have to be "pushed" as hard by their own behavioural data to display less satisfaction with memory, compared to younger adults. That is, the same objective number of self-recalled observations of own everyday forgetting, may ultimately result in less memory satisfaction for old, relative to young. An implicit theory approach might explain this pattern of correlations, in addition to group similarities and differences in MSS and EMQ scores, as stemming from influences on the interpretations of noted memory slips and successes, rather than frequency alone.

Between-group differences in the forgetting-satisfaction relation may be due to age-differences in affective status, (Kahn, et al., 1975; O'Hara, et al., 1986; Scogin, et al., 1985; West, et al., 1984; Williams, et al., 1987; Zarit, 1982), however, older adults had significantly more *positive* affect-balance scores than younger adults, which ought to have resulted in generally more positive memory self-report. Controlling for affect balance failed to eliminate group differences in EMQ scores, or reveal them in MSS scores. Consequently group differences in affective status are unlikely, by themselves,

to mediate the pattern of MSS and EMQ scores (and their interrelationship) that were observed.

Education is another possible moderator of individual-differences, perhaps via its' impact on self-expectations or everyday activities. Older subjects, although reporting a similar number of years of education as younger subjects, showed an inverse relationship between education and memory self-report; more education was accompanied by greater self-reported forgetting, and less satisfaction with memory. Young subjects with more education did not report noticeably more forgetting, and appeared to be somewhat (though not significantly) more content with their memory. Conceivably, older retired individuals with more education may perceive a greater contrast between what they view as their current level, and previous best level, of intellectual activity and everyday memory performance, during their education or employment years. Thus, even small amounts of forgetting might be sufficient to detract from high levels of satisfaction with memory. Confirmation of this requires additional measurement of motivation to remember, and perceptions of personal change in memory.

Age differences in daily demands on memory may have some influence on the forgetting-satisfaction axis. Older adults rated themselves as having significantly fewer daily memory demands placed on their memory, $F(1,182)=27.46$, $p<.0001$, and also displayed less satisfaction with their memory as perceived daily memory demands decreased, $r(107)=.281$, $p=.003$. Perceived memory demands were unrelated to memory self-report in young subjects. Whether estimates of demand are accurate or not, perceptions of the demand context in which everyday memory slips occur may have some bearing on how they are interpreted by older and younger adults, perhaps via attributions (Blank, 1984; Frieze, 1984; Hammer, 1992).

Diagnosticity and memory satisfaction.

It was predicted that individuals more likely to interpret the memory slips of someone their age as evidenciary of a more general memory trait (i.e., adopt an entity theory), would be more likely to display negative reactions to their everyday forgetting, in this case, display lower memory satisfaction. This prediction is also prompted by

Erber, et al.'s (1990a, 1990b) finding that young and old adults are both more likely to view the memory slips of older targets as a sign of "mental difficulty". This putative relationship between implicit theory of memory (partially indexed by diagnosticity scores for own cohort) and satisfaction with memory might conceivably explain the paradoxical relationship between EMQ and MSS scores for the two age groups. That is, many older adults might report less forgetting, but read more into it, yielding lower satisfaction scores than would be predicted by their EMQ scores. Analysis of the relationship between diagnosticity and MSS scores, however, did not confirm this prediction. Same-cohort diagnosticity scores were only marginally predictive of MSS scores for the young, and *not* predictive for the old.

In some respects, younger adults obtained the result congruent with the approach generally advanced in the dissertation. Those who expected poorer memory for their age group reported more forgetting in themselves, but were not more inclined to view the memory behaviour of their age group as indicative of general memory ability. In turn, both reported forgetting and individual differences in perceived diagnosticity of own-cohort forgetting predicted memory satisfaction. Although not compelling, the picture is one of individuals reporting memory satisfaction corresponding to how much they think they probably forget and how much they think that forgetting tells them. In turn, although what they think is characteristic of their age group may provide some schematic basis for estimating the quantity of their own forgetting, it doesn't predict how much they think that forgetting means in any systematic way.

In contrast, older subjects present an entirely different picture. Older subjects' memory satisfaction scores were not different from those of younger adults even when age differences in reported forgetting and affect-balance were taken into account. This result would be congruent with the major hypotheses of the dissertation if same-cohort diagnosticity ratings by older subjects were predictive of memory satisfaction (and preferably *more* predictive than it is for young adults). The argument could be made that for any given level of self-rated forgetting, an older adult will display lower memory satisfaction than a younger adult would because they treat forgetting in people their age

as more diagnostic of some fundamental ability to remember. However, older subjects' diagnosticity ratings of forgetting for their own cohort did not reliably predict memory satisfaction as it did for younger subjects. Adding to the paradox is the finding that both diagnosticity of own-cohort forgetting and self-reported forgetting were predicted by expectations for own-cohort forgetting, which is what would be predicted by the approach being advanced. The "missing piece", in a sense, is the perceived diagnosticity of forgetting of older targets by older subjects.

Diagnosticity of same-cohort memory behaviour may be more predictive of perceptions about own memory behaviour for younger subjects, simply because they see little difference between themselves and others their own age (Heckhausen & Krueger, 1993). In contrast, same-cohort diagnosticity ratings for older subjects would likely be *less* predictive of memory self-perceptions since older adults would differentiate between other elderly and themselves. It may be that, for older individuals, moreso than for younger individuals, the more appropriate measure for addressing the relationship between social-schemas of aging and self-schemas of memory are diagnosticity ratings for one's *own* memory behaviour.

Chapter Eight

Study 2

Rationale and Hypotheses

Several key questions emerged from the first study:

1) *Does the current measure of perceived diagnosticity of memory behaviour have any bearing whatsoever on memory satisfaction or other memory self-report?* In contrast to predictions made from an implicit theory approach, diagnosticity ratings for one's own age group did not predict self-rated forgetting or MSS scores for older subjects in Study 1. The failure to observe the predicted relationship may stem from the tendency of older adults to dissociate themselves from the perceived characteristics of other elderly (Heckhausen & Krueger, 1993). Consequently the more appropriate test of the putative relationship between perceived diagnosticity of memory behaviour and memory satisfaction may be to examine diagnosticity ratings for *self* for the same MRQ items. The predicted outcome would be an inverse relationship between diagnosticity of own memory behaviour and memory satisfaction, such that elderly individuals who treat their own memory behaviour in a more trait-like manner should express greater dissatisfaction with their memory.

Self-schema theory (Markus, 1977) also suggests that individuals who perceive information as more reflective of some self-trait are more likely to encode and retrieve that information when the opportunity arises. Self-schema theory, and Ross' and Dweck's notions of implicit theory, both deal with the interpretation of social information, but do not conflict in any sense. Whereas social-schema theory is concerned with the *fact* that information is differentially processed and organized around self-related themes, the implicit-theory view is more concerned with the themes themselves. In this case, individuals who treat memory behaviours as potentially evidenciary of some memory-ability trait in themselves should also be more likely to note and recall instances of forgetting. This should be reflected in higher EMQ scores and, ultimately, lower memory satisfaction.

2) *Do MRQ-diagnosticity scores reflect the larger notion of implicit theory proposed by Dweck (1986)*? Dweck (1986) characterizes an entity theory as entailing both trait-like perceptions of performance, and perceptions of the such traits as being largely uncontrollable and unremediable. Diagnosticity ratings (as would any other type of comparable attribution measure) provide an indication of the perceived trait-like basis of performance, but no indication of the perceived controllability of such a trait. To some extent, the relationship between expectations of decline and perceived diagnosticity, seen in Study 1, serve to underscore the general belief that forgetfulness is a trait of later life that can't be avoided. Moreover, negative traits associated with later life tend to be seen as less controllable (Heckhausen & Baltes, 1991). However, a more compelling test of the general hypothesis that memory self-report may be mediated by individuals' implicit theories of memory, would be provided by inclusion of reliable measures that directly address such perceptions of control. Currently, Dixon and Hultsch's (1983) MIA instrument provides the only psychometrically validated index of perceived control over memory (MIA-Locus; Gilewski & Zelinski, 1986). An implicit theory interpretation would predict an inverse correlation between perceived MIA-Locus scores over memory and MRQ-diagnosticity ratings, such that individuals who perceive their memory as more trait-like also perceive themselves as having less control over it.

3) *Does adopting an entity theory of one's own memory in later life alter perceptions of competence*? Adherence to an entity theory of one's *own* memory in later life should also be accompanied by lower self-perceptions of competence. Within Dweck's framework, such individuals are at greater risk for having subjective competence undermined, and are more likely to react negatively to instances of failure (such as forgetting). As noted earlier, the measure of self-rated forgetting employed in Study 1 tends not to result in the negative age differences that are generally obtained when individuals judge their memorial competence, relative to some idealized anchor. Consequently, a more appropriate test of an implicit theory interpretation of memory self-report would empioy some measure of self-rated competence or memory self-efficacy (Bandura, 1989; Hultsch, et al., 1988), in addition to some measure of response to

potential, or actual, memory failure. Dixon and Hultsch's (1983) MIA contains several measures which reflect a more general construct of memory self-efficacy (Hertzog, et al, 1989), including a measure of self-rated memory competence, and self-rated decline. The memory satisfaction scale employed in Study 1 is used here as an index of reaction to memory failures. An implicit-theory approach would predict lower self-rated competence, and lower memory satisfaction, with increasing tendency towards adopting an entity-theory of one's memory (i.e., lower control, more trait-like).

4) *Is there any influence of older adults' more exaggerated stereotypes of age-related memory-decline on what they say about their own memory?* The approach adopted in the dissertation, suggests that beliefs about normative age-related decline encourage individuals to treat memory of older individuals in a more trait-like fashion. In Study 1, older adults' diagnosticity ratings of old targets, were predicted by their stereotypes of age-related memory decline. Insomuch as diagnosticity ratings for others may not be isomorphic with diagnosticity ratings for self, it remains unclear whether age-stereotypes of memory-decline predict older individuals' perceptions of the informativeness of their *own* memory behaviour. The approach being advanced here would predict that older individuals who perceive normative age-related decline as more substantial will be also more likely to view their own memory behaviour in more trait-like terms.

One of the features of Ross' (1989) implicit-theory approach is that individuals may apply such naive developmental theories in retrospective self-evaluation. Preliminary support for the relationship between individual differences in age-stereotypes of memory decline, and perceived memory decline in one's self, has been provided by McFarland, et al., (1992). In their study, older adults' retrospective self-ratings on personal dimensions tended to mirror their expressed beliefs about both the direction and extent of age-related change for others along those same dimensions, and appeared to overestimate that change in themselves. Although McFarland, et al., found strong evidence for this general tendency, little support for this outcome was observed with respect to memory *per se*. One possible source of this result was their use of single-item

measures of perceived change in self and others. A more compelling case could be provided by using more reliable, multiple-item, indices of both self-rated memory-change and age-stereotypes of memory, across a broader spectrum of everyday memory domains. Their design also introduced a confound, pertinent to the goals pursued here, by having their elderly subjects employ overall change ratings, in the absence of ratings for their own cohort group. Although, in many respects, the two types of rating (degree of change in others and target-rating differences) are functionally equivalent, subjects may perceive self-change on a greater, or lesser, scale than what they perceive in others, and still demonstrate the same general relationship between the two. A more compelling test of the putative relationship between social-schemas and self-schemas of memory change would involve comparison of self-rated change in memory functioning with expectations of normative age-related decline in memory functioning; in this case, MRQ-typicality ratings for both young and old targets. The finding of a significant positive correlation between degree of self-rated memory decline, and degree of anticipated memory decline in others, would be congruent with the position advanced in the dissertation; i.e., implicit theories about memory over the lifespan influence self-perception.

5) *Are adults' beliefs about age-related memory decline influenced, or predicted by, their more general beliefs about aging*? Williams, et al.'s, (1983) subjects tended to attribute their own forgetting and that of other elderly to non-memorial age-related factors which reflect age-stereotypes (e.g., increasing disinterest). Several studies have noted that increased forgetfulness is part of a much larger picture of general age-related decline (Heckhausen & Baltes, 1991; Heckhausen, et al., 1989), although stereotypes of aging are not exclusively negative (Heckhausen, et al., 1989; Kite & Johnson, 1988). To the extent that beliefs about age-related memory decline are part of an individual's broader set of beliefs about age-related changes, one would also predict a similar, though smaller, correlation between measures indexing beliefs about own memory decline, and more general beliefs about aging.

6) *To what degree does memory self-perception in older adults depend on how much they identify with age-stereotypes*? Although stereotypes of memory-decline were predictive of older adults' interpretation of memory behaviour in their age group, they had little bearing on older adults' memory satisfaction. Heckhausen and Krueger's (1993) observation that older adults tend to attribute much greater decline to other elderly than to themselves, suggests that individuals may show little relationship between stereotypes of age-related memory decline and memory self-perception if they view such stereotypes as not applying to themselves. Consequently, a more complete picture of the potential role of social-schemas of memory and general decline on memory self-perception would be provided by examining the degree to which older adults see their own memory as being like other stereotyped adults. The general prediction here would be that identification with age-stereotypes would predict additional variance in self-perceived decline, over and above whatever age-stereotypes subjects express.

7) *Is satisfaction with one's memory simply a facet of overall life satisfaction, or a relatively distinct construct*? Although not central to the major hypotheses of the dissertation per se, the validity of the memory satisfaction measure is of some concern, in terms of what individual differences in memory satisfaction have to say about the role of implicit theories. Some initial validation of the memory satisfaction measure was provided in the first study, by virtue of it's relation to measures of self-rated forgetfulness and affect. It is unclear, however, whether MSS scores reflect a distinct construct, or is simply one aspect of more general life satisfaction. Further validation of MSS scores would be provided by assessing the divergent validity of this measure, relative to a measure of more general life satisfaction. Ideally, MSS scores should be predicted more by memory-relevant measures, and life satisfaction predicted more by other well-being measures.

In view of these seven questions, a second study was directed towards a more in-depth examination of individual differences in older adults' beliefs about their own and others' memory, rather than age-group differences. Of primary interest was examination of the multiple relationships between diagnosticity of own memory behaviour, self-

reported forgetting, and memory satisfaction, with respect to question 1. Of somewhat equal interest was the relationship between individuals' beliefs about age-related memory-decline and increasing trait-basis of performance in others, their implicit theories of their own memory, and various commonly-used memory self-report measures, such as self-rated competence or capability, and self-rated longitudinal change in capability. As noted earlier in the literature review, these two are among the most commonly examined memory self-report measures (Gilewski & Zelinski, 1986), and both types of measures are central to the more general notion of memory self-efficacy (Hultsch, et al., 1988). They are also the two types of memory self-report measures for which age-differences are most often observed (Hultsch, et al., 1988). Consequently, the second study included indices of both memory-specific and general beliefs about aging, in addition to an assortment of memory self-report measures, to examine potential distal and proximal influences of social-schemas about aging on older adults' memory self-report.

The implicit-theory interpretation of memory self-report advanced in the dissertation has two components, depicted in Figure 1. The first component (and more proximal influence) is the degree of adherence to an entity theory of one's own memory by older adults (labelled "implicit-theory" in Figure 1), in which memory is seen as trait-like, and relatively non-remediable. This component is suggested here as influencing the logging and interpretation of current memory functioning, ultimately reflected in degree of satisfaction with memory. The self-theory component is, in turn, influenced by a broader implicit theory of memory across adulthood (labelled "age-beliefs" in Figure 1), which (for some) consists of beliefs depicting memory as declining, and becoming more trait-like with age. In addition to influencing implicit theories of own memory, variations in this component are proposed here to also influence self-perceptions of memory decline and current level of everyday functioning.

In sum, the general prediction of Study 2 would be that beliefs about aging, and beliefs about memory across adulthood, should manifest both direct and indirect influences on self-report about memory functioning. Individuals' satisfaction with their memory may ultimately rest on the actual behaviour they observe in themselves. Such

behaviour, however, is judged in terms of their implicit theories of their own memory, which, in turn, arise partly out of their beliefs about aging. Consequently, memory satisfaction should show an indirect relationship to both components of the implicit theory approach advanced here.

In more specific terms, the predictions of Study 2 are that:

(1) The age-stereotypes of memory decline found in Study 1 will be replicated. Older targets will be seen as demonstrating lower everyday performance than younger targets.

(2) Such age-stereotypes will be predictive of self-rated memory decline, and generally more preditive of self-rated decline than broader stereotypes of general age-related decrement. That is, those who perceive more substantial age-related memory decline to be the norm, should also see themselves as having had much better memory functioning in the past, as should individuals who view age as generally associated with decline (although to a lesser extent).

(3) Perceptions of own decline should vary, not only as a function of one's age-stereotypes, but as a function of the degree to which one identifies with such stereotypes.

(4) Elderly individuals with more pronounced age-stereotypes of memory should offer higher diagnosticity ratings for their own memory behaviour.

(5) Indices of individuals' implicit theories of their own memory should be related, such that those viewing their own everyday memory as more reflective of some memory-trait, should also express a lower sense of control over their memory functioning.

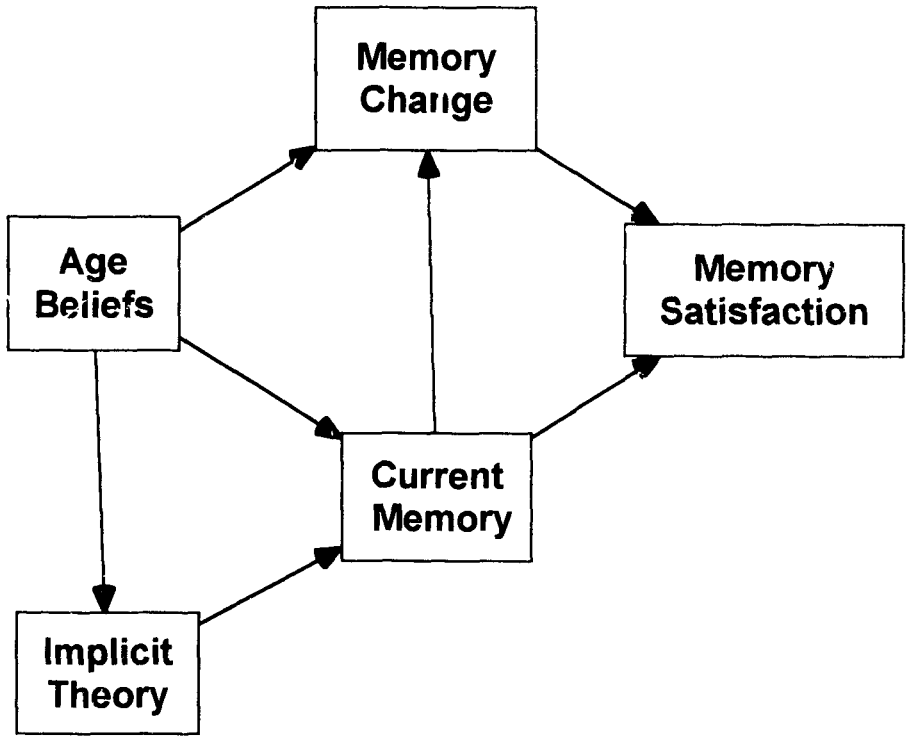
(6) In turn, perceived diagnosticity and controllability of memory should be predictive of memory self-report, such as current memory functioning and memory satisfaction.

(7) Memory satisfaction itself should be more strongly related to other forms of memory self-report than to more general life satisfaction.

Finally, to the extent that implicit theories of age-related memory changes and implicit theories of one's own memory play a role in adults' reactions to their own everyday memory performance, such factors should predict variance in memory satisfaction over and above other non-belief factors such as general affect and well-being. Support for all of these hypotheses would, in turn, provide support for the view that adults' beliefs about what is true for other adults influence what they believe to be true about themselves, vis a vis their memory.

Figure 1

Path Model of Influence of Beliefs About Aging



Chapter Nine

Method

Sample and Recruitment

The participants were community-dwelling, English-speaking adults, recruited from seniors' activity groups, retirement complexes, and retirement planning workshops in the Victoria, British Columbia area. Recruiting was conducted in a manner similar to Study 1. Approximately 320 questionnaires were distributed to males and females. Of these, 113 were returned. Only those subjects with complete data for the primary measures of interest were retained for analysis (see Results section), leaving a final sample of eighty-four adults 55-84 years of age (M=66.9 years). Thirty-one subjects from this final sample (37%) were of similar age to the old targets they would be rating (age 65-70). If individuals from 64-71 years of age were included, approximately 46.4% of the sample were within a year's age of the old-targets. This is virtually identical to the distribution observed in the older sample in Study 1. Mean age and other subject characteristics are shown in Table 9.

Subjects in Study 2 were roughly comparable to older subjects in Study 1 in a variety of other respects. Subjects were generally happy (M=2.26 for Study 2; M=2.08 for Study 1), described themselves as fairly healthy (M=4.19 for Study 2; M=4.32 for Study 1), and reported a generally positive frame of mind, as indexed by their affect balance scores (M=6.89 for Study 2; M=6.25 for Study 1). None of these between-group differences were statistically significant. Simple correlations indicated that subject sex was unrelated to any of the measures of well-being and affective status.

Demographic characteristics across the two samples were quite similar. As in Study 1, approximately two thirds were female (25 male, 58 female, 1 with no sex indicated). Of the older subjects in Study 1, 80.3% described themselves as primarily retired, compared to 80.9% in Study 2. The older sample in Study 1 and the Study 2 sample also reported similar amounts of education (M=14.9 years for Study 1;

Table 9

Subject sample characteristics for Study 2 (n=84)

Variable	Mean	s.d.
Age	66.89	6.31
Education (years)	14.82	3.66
Affect Balance (max=9)	6.89	1.76
Happiness (max=3)	2.23	.55
Health (max=5)	4.19	.77
LSI (max=20)	13.92	4.22
Age-decrement (max=5)	3.10	.47
Fear-of-aging (max=5)	3.28	.50

M = 14.8 years for Study Two). Consequently, for the most part, data from subjects in Study 2 could be reasonably compared with that obtained on identical, or related, measures for the same age group in Study 1.

Materials

All of the same materials used in Study 1 were employed in Study 2, with several modifications (noted below), and additions. The 6-item Memory Satisfaction Scale, originally included in the Personal Data Booklet, was relocated within another questionnaire (see below). The Everyday Memory Questionnaire was also situated in a booklet with other scales, rather than presented on its' own.

Memory Rating Questionnaire.

Although retaining the same scenarios in the same sequence, the Memory Rating Questionnaire (MRQ) was modified such that subjects provided typicality ratings for *themselves* in addition to ratings for hypothetical old and young targets (see Appendix E). This permitted concurrent assessment of age-stereotypes of memory performance, a collateral measure of self-rated memory functioning (indexed by mean typicality ratings for self), and identification with stereotypes of age and memory. Diagnosticity ratings of targets were replaced with ratings for one's self, based on the hypothetical occurance of the depicted memory behaviours in one's self.

Identification with memory stereotypes was indexed by a ratio score reflecting the degree to which subjects rated themselves as more like other elderly than like young targets. The ratio was derived from the difference between overall typicality ratings for old targets and self, divided by the difference between overall typicality ratings for old and young targets (O-S/O-Y). Using this formula, scores larger than ½ reflect greater identification with young targets, relative to old targets, whereas scores smaller than ½ reflect increasing identification with other elderly. Where individuals evidenced no stereotypes (i.e., rated young and old targets identically, yielding a zero denominator), identification scores were set to ½. Although the typicality ratings used here are not true ratio variables, potential confounds could be created by using absolute differences

between targets and self as a measure of identification. Consequently, ratio scores were employed to control for individual variation in use of the scale anchors.

In the absence of any consistent effect of the order in which subjects provided MRQ typicality and diagnosticity ratings in the first study, subjects received only one rating sequence (typicality first). In view of the significant effect of target gender on ratings in Study 1, two forms of the MRQ, counterbalanced for target-gender, continued to be used, with data from both forms pooled together.

Memory perceptions booklet.

A second booklet (the Memory Perceptions Booklet or MPB; see Appendix F) contained several questionnaires pertaining to perceptions of one's own everyday memory functioning. In addition to the EMQ measure, employed in Study 1, the booklet contained a modified form of the Metamemory in Adulthood (MIA) instrument (Dixon & Hultsch, 1983). The original MIA contains 108 items organized into seven factor-referenced scales concerning knowledge and beliefs about memory in general, and about one's own memory. Of the original seven scales contained in the MIA, items from three entire scales were deleted to shorten the questionnaire. The three deleted scales - *Strategy*, *Task*, and *Anxiety* - cluster around individuals' knowledge about how memory works, including how performance is affected by emotional state (Hultsch, et al., 1988).

The four scales retained included: (*a*) the *Capacity* scale, consisting of 17 items addressing perceived current memory capability across a number of different memory domains (higher scores reflect greater perceived memory capability), (*b*) the *Achievement* scale, consisting of 16 items addressing individuals' motivation to remember effectively, and be seen as remembering, (higher scores reflect greater personal emphasis on memory performance), (*c*) the *Locus* scale, consisting of 9 items addressing individuals' sense of personal control over memory capability and its' maintenance (higher scores reflect greater perceived control over memory functioning), and (*d*) the *Change* scale, consisting of 18 items addressing perceived and anticipated decline in one's own and others' memory (higher scores reflect greater long-term stability in memory functioning). All

items are scored on a 5-point Likert scale, with responses ranging from "agree strongly" to "disagree strongly".

Since the phrasing of the Memory Satisf ·ion Scale was comparable to MIA item-phrasing, and was scored in the same manner, the six MSS items were interleaved with the MIA items. As with the MIA scales, higher mean MSS scores reflected more positive self-evaluation; in this case, increasing satisfaction. The combination of the four MIA scales and the MSS items yielded a total of 67 items.

Since one of the primary foci of Study 2 was the examination of relationships between self-schemas of memory change, and social-schemas of age-related change, only those items explicitly referring to change observed in one's own memory over time (without reference to *expectations* about decline in self or others) were included in analysis of MIA scores reflecting self-reported decline. These 14 items (see Appendix G) were termed the MIA-Change-Self items. The remaining four items referring to change noticed or expected in self/others, were designated as *MIA-Change-Other* items (see Appendix G), and analysed separately from MIA-Change-Self scale scores.

Appended to the modified MIA was a 5-item scale taken from the Memory Functioning Questionnaire (MFQ; Zelinski, et al., 1980). The MFQ-Retrospective scale requests subjects to rate how good their overall memory is currently, on a 7-point scale, relative to five earlier points in their lives (1, 5, 10, and 20 years ago, and at age 18). Scores of 5-7 reflect improved functioning, and scores of 1-3 reflect worse current functioning, relative to a prior age. Scores of 4 reflected similarity in memory functioning between two different ages (although not necessarily stability over time).

MFQ-Retro scores are related to both MIA-Change and a common factor of memory self-efficacy (Hertzog, et al., 1989), however, MIA-Change and MFQ-Retro generally share less than 15% common variance. The unique information about self-rated change, contributed by each scale may stem from their different time-frames.

(Note: one pilot MSS item was mistakenly included in the printed-up questionnaire, but was deleted from analysis to maintain comparability between MSS scores from the two studies)

Where MIA-Change restricts itself to the most recent 10 years, MFQ-Retro spans a broader interval. In addition, the scoring scheme, and multiple time frames of the MFQ-Retro allows individuals to express improvement or fluctuations in functioning, and different rates of decline, rather than simply the presence or absence of linear decline. Consequently, the MFQ-Retro items were included to provide a more comprehensive assessment of self-rated change in memory functioning.

In the absence of the deleted MIA scales (Task, Strategy, Anxiety), thematic redundancy in the remaining items became quite noticeable, such that contiguous rephrasings of the same basic questions occurred in several places. In response, the serial position of some of the items was altered from their original sequence in the MIA to reduce apparent redundancy. Thematic redundancy was further reduced by interpolation of MSS items.

While the original MIA appears to have excellent psychometric properties (Gilewski & Zelinski, 1986), there are limited data on this particular abbreviated, 4-scale form of the MIA. Cronbach's α for the four MIA scales employed ranged between 0.77 (Achievement) to 0.90 (Change). These α's were comparable to those reported by Dixon and Hultsch (1983). Intercorrelations between the four MIA scales (shown in Table 10) were, with a few exceptions, generally comparable to those obtained from the two samples reported in Hertzog, Hultsch, & Dixon (1989). Correlations between the MFQ-Retro scale and several MIA scales were somewhat higher than those reported by Hertzog, et al., conceivably due to contiguous administration in the current study, and non-contiguous administration in the Hertzog, et al., study. Ryan and See (1993) employed an even shorter version of the MIA (Change, Capacity, and Locus scales), and a somewhat younger sample, and obtained similar α's and $\underline{r}$'s to those observed here, supporting the view that the psychometric characteristics of the MIA scales were not jeopardized by its' alteration.

Although the MSS had demonstrated good internal consistency in the first study (α=0.88), the items were presented contiguously, which may have tended to inflate reliability. When the six items were interspersed throughout the MIA, the internal

Table 10

Comparison of MIA-scale/MFQ-Retrospective intercorrelations reported in Study Two and Hertzog, Hultsch, & Dixon (1989)

	Locus	Capacity	Change	Achieve	MFQ-Retro
Locus	-	.31/.40	.43/.42	.25/.28	.25/.22
Capacity	.33	-	.62/.65	.16/.12	.26/.27
Change	.50	.65	-	-.09/-.05	.36/.38
Achieve	-.06	.16	-.15	-	.01/.04
MFQ Retro	.27	.55	.64	-.04	-

Correlations above diagonal correspond to two independent samples of young and old (combined), reported in Hertzog, et al., (1989); correlations below diagonal correspond to sample from Study 2.

consistency of the scale was maintained, although α decreased to 0.81. In view of the existing literature on the MIA using the factor-referenced scale breakdown (Dixon & Hultsch, 1983; Hertzog, Dixon, Schulenberg, & Hultsch, 1987), and the restrictions on further factor analysis imposed by limited sample size, no attempt was made to justify treatment of the MSS as a separate dimension of memory perception on factor-analytic grounds. Rather, memory satisfaction was treated as a distinct measure of memory perceptions on the basis of both its' internal consistency (indexed by Cronbach's α) and content. MSS items contained no reference to specific memory domains (distinguishing them from MIA-Change and Capacity items), changes in functioning (distinguishing them from MIA-Locus and Change items), degree of motivation to remember (distinguishing them from MIA-Achieve items), or the locus of memory capability (distinguishing them from MIA-Locus items), making them distinct from the various MIA subscales.

In sum, then, the Memory Perceptions Booklet contained one measure addressing overall perceived memory adequacy (MSS), two measures addressing perceived current memory functioning (EMQ and MIA-Capacity), two measures addressing perceived changes in own memory-functioning (MIA-Change-Self and MFQ-Retro), and two measures addressing motivation to remember, and perceived control over memory functioning (MIA-Achievement and MIA-Locus). An additional measure (MIA-Change-Other) was treated as an index of expectations about memory decline in general.

Attitudes about aging.

Adults' subjective well-being, and more general perceptions about life in the adult years were addressed in a fourth booklet (Opinions on Aging Booklet; see Appendix H) containing 2 questionnaires. The Life Satisfaction Index (Neugarten, Havighurst, & Tobin, 1961) is a commonly used (Mangen & Peterson, 1982) 20-item checklist that addresses individuals' perceptions and expectations of current, past, and future quality of life. Higher total scores (maximum score of 20) reflect greater life satisfaction, and to some extent, greater subjective well-being (Liang, 1985).

The Aging Opinion Survey (AOS), taken from Kafer, Rakowski, Lachman, and Hickey (1980), addresses individuals' beliefs and feelings about growing older. The

original questionnaire contained 60 items, loading on 4 factor-referenced scales. For brevity, only two of the original four scales were used in the current study: perceptions and expectations of general age-related decrement (referred to here as age-decrement) and personal apprehension of growing older (referred to here as fear-of-aging). Items from each scale are alternated in the questionnaire, and scored on a 5-point "agree strongly" to "disagree strongly" Likert scale. Higher mean scores reflect a more positive view of old age, and less apprehension about growing older.

As in the case of the abbreviated MIA, there is no available data on this abbreviated version of the Kafer, et al., (1980), instrument. Analysis of the current data set indicated roughly similar reliability in the current sample (Cronbach's α of 0.73 and 0.77 for the age decrement and fear of aging scales, respectively), and the Kafer, et al., sample, (Cronbach's α of 0.78 and 0.65 for the same scales), as well as a significant positive correlation between the two scale scores ($\underline{r}$=.46 for Study 2; $\underline{r}$=.32 for the Kafer, et al., sample). Like the MIA, reducing the number of scales and items appears to have inflated the interrelatedness of scales, but not to have jeopardized, or dramatically altered, the psychometric soundness of the scales, at least as indexed by these measures.

A single additional item, *subjective age*, was employed as a measure of identification with old age. For this item, subjects indicated roughly how old they generally felt. The degree of identification is indexed here by the difference between subjective and chronological age, with larger negative values associated with a more youthful orientation. Subjective age is a commonly used indicator (Mangen & Peterson, 1982), related to a wide array of other constructs, including perceptions of aging, locus of control, and subjective well-being (Linn & Hunter, 1979; Montpare & Lachman, 1989; Steitz & McClary, 1988). In general, smaller differences between chronological and subjective age, for older adults, are reflective of decreased subjective well-being, and greater identification with negative stereotypes of aging.

Overview

The measures obtained from these various instruments may be roughly categorized as follows:

(1) Measures indexing expectations about normative age-related memory-decline (*MRQ typicality difference scores* - i.e., old-minus-young targets; *MIA-Change-Other* items).

(2) Stereotypes of general age-related decline (Kafer, et al., *age-decrement* measure)

(3) Affect and subjective well-being (*life satisfaction index, self-rated health, happiness, affect balance scale*).

(4) Identification with general negative stereotypes of aging (*fear of aging, subjective age*), and memory-specific stereotypes (*ratio of Old-Self/Old-Young scores for MRQ typicality ratings*).

(5) Indices of self-rated change in memory functioning (*MIA-Change, MFQ-Retrospective).*

(6) Indices of current self-rated memory functioning *(EMQ, MIA-Capacity, MRQ typicality-self ratings*).

(7) Attitudes about own memory functioning (*MIA-Achieve, Memory Satisfaction scale*).

(8) Indices of individuals' implicit theory of their own memory (*MIA-Locus, MRQ-diagnosticity for self*)

Although the MIA-Locus scale is generally considered to load on a memory self-efficacy factor along with MIA-Capacity, MIA-Change, and MFQ-Retro (Hultsch, et al., 1988; Hertzog, et al., 1989), it is treated here, along with MRQ diagnosticity-ratings, as a putative index of adults' implicit theory of their own memory.

Procedure

As in Study 1, materials were distributed to adults expressing interest in participation, and returned via anonymous postage-paid business-reply envelopes. The covering letter, included with the materials, provided the same explanation of purpose and procedures as in Study 1. Materials were presented to all subjects in the order of

PDB, MRQ, MPB, and OAB, with half of all packets distributed containing one gender-sequence of the MRQ items and the other half containing the opposite gender-sequence. Of those packets returned, and used in the final sample, thirty-five (42%) were one gender-sequence, and forty-nine (58%) were the opposite gender sequence. As with the first study, subjects were requested to complete the materials in the order presented, and to complete as much as they felt they could.

Chapter Ten

Results

Age Stereotypes and Memory-Beliefs

Many of the major predictions of Study 2 may be summarized as predicted relationships between age-stereotypes of memory decline, and other sorts of beliefs about one's own memory, such as beliefs about the meaning of one's everyday memory performance, and beliefs about how much one may have changed over the years. The stereotypes themselves were replicated in the Study 2 sample (see Table 11). In general, typicality ratings were similar to, though slightly lower than (i.e., more favourable), those offered by older subjects in Study 1 (pooling across targets and all items, $\underline{M}=2.88$ for older subjects in Study 1, $\underline{M}=2.73$ for Study 2). As in Study 1, expectations of remembering decreased with target age, while expectations of forgetting increased with target age. Differences here mirror those found in Study 1, in which larger target-age discrepancies in ratings were observed for forgetting items, compared to remembering items.

On average, subjects tended to rate their own everyday memory between what they saw as typical for younger and older adults. A repeated-measures ANOVA indicated a main effect of target for overall typicality ratings, $\underline{F}(2,82)=68.84$, $\underline{p}<.001$. Post hoc contrasts indicated that ratings for self ($\underline{M}=2.81$) were less favourable, $\underline{F}(1,83)=111.17$, $\underline{p}<.001$, than those for young targets ($\underline{M}=2.34$), but more favourable than those for older targets ($\underline{M}=3.13$), $\underline{F}(1,83)=30.97$, $\underline{p}<.001$. In sum, the observed pattern of typicality ratings for targets given in Study 2 replicated those of Study 1. As predicted from the findings of Heckhausen and Krueger (1993), subjects rated themselves somewhat more positively than other adults their own age, but less positively than younger targets.

Typicality ratings and beliefs about aging.

The validity of age-stereotype scores derived from typicality ratings for young and old targets, was supported by the observation of a significant correlation between typicality ratings and AOS-age-decrement scores. Individuals who perceived greater

Table 11

Mean MRQ Typicality-ratings for Young targets, Self, and Old targets (s.d. shown in parentheses)

	Target		
	Young	Self	Old
Overall	2.34 (.443)	2.81 (.500)	3.13 (.477)
Remembering only	2.99 (.781)	2.33 (.792)	2.45 (.694)
Forgetting only	2.06 (.555)	2.45 (.621)	2.94 (.625)

general decline associated with age also tended to rate young and old targets' overall memory functioning more discrepantly, $r(83)=-.391$, $p<.001$ (all r's two-tailed). Closer inspection indicated that more positive views of aging were associated with typicality ratings that tended to even out depictions of different-aged targets. Individuals who anticipated more forgetting in young targets, $r(83)=.276$, $p=.011$, and more remembering in old targets, $r(81)=.369$, $p=.001$, tended to offer more positive age-decrement scores.

Stereotypes of memory-decline and self-perceived memory-decline

Mean typicality ratings indicated that older subjects describe themselves as having a poorer memory than younger people, although not as poor as what they perceive to be typical for their age-group. Do those who associate aging with greater memory decline feel they have also declined themselves? Analysis of simple correlations indicated that they do. Individuals who perceived a greater discrepancy between the overall memory functioning of young and old targets on the MRQ also tended to report greater decline in their own memory on those items of the MIA-Change scale pertaining to self, $r(84)=-.308$, $p=.004$, and on the MFQ-Retro scale, $r(83)=-.263$, $p=.016$. Individuals who gave more negative self-ratings on the MIA-Change-Self items also tended to voice beliefs about more general age-related decrement, $r(83)=.275$, $p=.012$. The same was not true for individuals voicing greater self-decline on the MFQ-Retro. As noted earlier, several of the MFQ-Retro items pertain to a short, recent time-frame, which may attenuate the relationship of the overall scale score to any age-stereotype beliefs subjects might hold.

One of the other predictions made at the outset was that the relationship between age-stereotypes of memory decline and self-rated decline would also be a function of the degree to which subjects identified with negative stereotypes of aging. This hypothesis was tested by means of a hierarchical multiple regression, in which indices of age-stereotypes were used to predict self-rated change, after controlling for affect, well-being, and demographic factors, and indices of stereotype identification were used to predict self-rated change after the stereotypes themselves were statistically controlled. Relevant

variables were entered into each regression in four blocks. The sample mean was substituted in those cases where subjects were missing complete data for a given variable, in order to preserve sample size. This accounted for 9 out of 1092 data points over both analyses. Demographic variables (age, sex, education) were entered first, followed by affect and well-being variables (self-rated health, self-rated happiness, life satisfaction, and affect balance). Affective status and mood have a demonstrated relationship with both memory self-report (O'Hara, et al., 1986; West, et al., 1984), and other types of self-evaluation (Brown & Mankowski, 1993). In view of this, as well as the relationship between health and actual memory functioning (Hultsch, Hammer, & Small, 1993), affect and well-being variables were entered in advance of other variables to allow examination of variance uniquely predicted by belief/attitudinal variables, over and above affect and well-being.

Indices of subjects' beliefs about age-related decline were entered as a third block. These included age-stereotypes about memory decline (the difference between overall typicality ratings for young and old targets), and age-decrement scores from the Kafer, et al., questionnaire. Those items from the MIA-Change scale which pertained to anticipated change in one's self and others may also be considered as a reflection of subjects' stereotypes of aging. The fairly robust simple correlation (r=.654) between this subset of items from the MIA-Change scale, and the remaining MIA-Change items (those reflecting change which is perceived to have already occured) is suggestive of the proposed relationship between memory-stereotypes and memory self-perceptions. In view of their inclusion in the same instrument and similar phrasing, however, these items were not included as predictors of self-perceived memory change, to permit a more stringent test of the hypothesis using only measures outside of the MIA.

Other analyses in the current study had indicated that older adults tend to dissociate beliefs about themselves from their beliefs about other elderly. Consequently, two measures reflecting identification with old age were entered as a fourth block to evaluate whether degree of identification with negative stereotypes was important in predicting self-rated decline, over and above the actual stereotypes held. The two

measures employed were identification with memory stereotypes, and subjective age (see Method section). Although both memory stereotype scores and memory-identification scores employ ratings for old and young targets to derive scores, identification with memory-stereotypes was uncorrelated with the extent of stereotyping itself ($r < .1$), reducing possible confounds stemming from order of entry.

The combined demographic variables, entered in step 1 (see Tables 12 and 13), did not predict a significant increment to R^2 in the case of either MIA-Change-Self or MFQ-Retro. The combined affect and well-being variables predicted an additional 14.4% of the variance in the case of MIA-Change-Self, $F(4,76)=3.283$, $p=.016$, and an additional 21% of the variance, in the case of MFQ-Retro, $F(4,76)=5.149$, $p=.001$. Beliefs-about-aging variables predicted an additional 8.7% of the variance in MIA-Change-Self, $F(2,74)=4.302$, $p=.017$, and an additional 9.6% of the variance in MFQ-Retro, $F(2,74)=5.229$, $p=.0075$. Entry of variables indexing the degree to which subjects identified with old-age significantly incremented R^2 by 6.6% in the case of MIA-Change-Self, $F(2,72)=3.491$, $p=.036$, but only by 2.3% in the case of MFQ-Retro, $F(2,72)=1.25$, $p=.29$. A second set of regressions was conducted, with age-beliefs and age-identification variables entered in the reverse order. The variance predicted by each of these sets of variables did not change appreciably when the other set was partialled out. In the case of MFQ-Retro, identification variables still predicted a nonsignificant increment to R^2.

The final multiple-R between all eleven variables and MIA-Change-Self scores (see Table 12) was .567, $F(11,72)=3.094$, $p=.0019$, and .587 (see Table 14) between MFQ-Retro and the four blocks of variables, $F(11,72)=3.435$, $p<.001$. In view of the large number of variables in the regression, and their multicollinearity (e.g., affective-status and well-being variables were significantly correlated with perceptions of aging), the significance of individual beta coefficients was not examined (Norušis, 1985).

In sum, when affective status and subjective well-being were statistically controlled, beliefs about aging still predicted a significant proportion of the observed

Table 12

Prediction of MIA-Change-Self scores: Hierarchical multiple regression

Step	Variables	Multiple-R	Increment to R^2	F for change	p
1	Demographic age sex education	.1577	.0249	.681	.567
2	Affect / well-being self-rated health happiness affect-balance life satisfaction	.4105	.1437	3.282	.016
3	Beliefs about aging AOS age-decrement MRQ typicality (Old-young diff.)	.5051	.0866	4.302	.017
4	Identification with old age Subjective age MRQ typicality (Old-self)/(Old-young)	.5666	.0658	3.491	.036

n=84; mean substitution used for missing values

Table 13

Prediction of MFQ-Retro scores: Hierarchical multiple regression

Step	Variables	Multiple-R	Increment to R^2	F for change	p
1	Demographic age sex education	.1250	.0156	.423	.737
2	Affect / well-being self-rated health happiness affect-balance life satisfaction	.4749	.2099	5.149	.001
3	Beliefs about aging AOS age-decrement MRQ typicality (Old-young diff.)	.5669	.0959	5.229	.0075
4	Identification with old age Subjective age MRQ typicality (Old-self)/(Old-young)	.5867	.0128	1.251	.292

n=84; mean substitution used for missing values

variation in self-rated memory decline, as measured in two different ways. Identification with stereotypes predicted a modest, but significant amount of variance in one of the measures of self-rated decline.

Ideally, self-rated memory decline ought to be more closely associated with social-schemas of age-related decline in memory than with schemas of general age-related decrement. MIA-Change-Self scores were significantly related to AOS age-decrement scores, $r(83)=.275$, $p=.012$, such that individuals with a more positive view of aging also reported greater memory stability in themselves. Although the correlation between self-rated memory decline and beliefs specifically about age-related memory decline was somewhat stronger, these two correlations did not differ significantly.

Do age-stereotypes result in a different interpretation of one's memory behaviour?

As in Study 1, diagnosticity ratings were again used as an index of the degree to which adults adopted an entity-theory of everyday memory performance. In view of the potential for dissociation between diagnosticity of own and others' behaviour, subjects in Study 2 rated the diagnosticity of the MRQ items for themselves. Subjects in Study 2 provided substantially lower overall diagnosticity ratings for self ($M=2.47$) than those provided by older subjects for either old targets ($M=3.12$), or younger targets ($M=2.79$) in Study 1. The lack of diagnosticity ratings for young and old targets in Study 2 makes direct within-subject comparisons difficult, however, the elderly samples in Study 1 and Study 2 were sufficiently similar to permit reasonable between-group comparisons. Independent t-tests, comparing diagnosticity ratings for self against ratings for old and young targets by Group 2 in the first study, indicated that own overall memory behaviour was rated as significantly less diagnostic than similar behaviour in old targets, $t(187)=7.07$, $p<.001$ (all t's reported two-tailed), and less diagnostic than that of young targets, $t(187)=3.25$, $p<.01$. This latter difference held whether one compared diagnosticity ratings of remembering ($M=2.51$ for self, $M=2.84$ for young targets in Study 1), or forgetting ($M=2.44$ for self, $M=2.76$ for young targets in Study 1).

The results of a third study, completed after the two studies reported here, sheds some light on this pattern. One hundred adults, aged 20-71, were recruited in the same

manner as the two dissertation studies, and provided diagnosticity ratings for self in addition to young and old targets. Examination of those adults aged 50-71, indicated that older adults positioned themselves ($\underline{M}$=2.80) between young ($\underline{M}$=2.51) and old ($\underline{M}$=3.03) targets when rating the diagnosticity of their own forgetting behaviour. Repeated-measures ANOVA indicated a significant effect of target, $\underline{F}(2,38)=8.11$, $\underline{p}=.001$, and post hoc contrasts indicated that self-ratings were significantly higher than those for young targets, $\underline{F}(1,39)=12.48$, $\underline{p}=.001$, and significantly lower than those for other elderly, $\underline{F}(1,39)=14.59$, $\underline{p}<.001$. In the case of remembering behaviour, subjects offered ratings for themselves, $\underline{M}$=3.26, which were identical to those offered for young, $\underline{M}$=3.24, and old targets, $\underline{M}$=3.29. The higher overall mean diagnosticity score for self in this additional sample, $\underline{M}$=2.95, compared to Study 2, $\underline{M}$=2.47, suggests that response patterns tend to shift when subjects are asked to make comparisons between different-aged targets, or compare themselves to some other anchor. In this respect, the correlation between individual variation in diagnosticity ratings and memory self-report measures in Study 2 should be taken as more informative than the absolute level of diagnosticity ratings.

In Study 1, older subjects who offered more discrepant typicality ratings for young and old targets, also tended to view the memory behaviours of old targets as more diagnostic (see Table 14). In the current study, overall diagnosticity scores for one's own memory behaviour were correlated with beliefs about longitudinal change in others, particularly those aspects of young and old targets' memory behaviour that were consistent with age-stereotypes. Individuals who expected more forgetting in old targets, $\underline{r}(82)=.258$, $\underline{p}=.019$, and more remembering in young targets, $\underline{r}(80)=.368$, $\underline{p}=.00$ tended to rate their own everyday memory behaviour as more diagnostic, as did individuals who treated the overall memory behaviour of young and old as more discrepant, $\underline{r}(82)=.257$, $\underline{p}=.02$. Even though the absolute diagnosticity ratings themselves were lower in the current study, the pattern of relationships observed between typicality and diagnosticity ratings was similar to that observed in Study 1. Although related to typicality ratings, *general* age-related decrement (AOS) scores

Table 14

Correlations Between Study 2 Diagnosticity and Typicality Ratings

	Diagnosticity Ratings for Self		
	Forgetting	Remembering	Overall
Typicality (*Self*)			
Forgetting	.601***	.013	.528***
Remembering	-.155	.240*	-.044
Overall	.590***	-.103	.474***
Typicality (*Young Targets*)			
Forgetting	.106	-.092	.054
Remembering	.274*	.316**	.368**
Overall	-.055	-.258*	-.152
Typicality (*Old Targets*)			
Forgetting	.269*	.041	.258*
Remembering	.044	.178	.101
Overall	.218	-.050	.180
Difference (*Old-Young*)			
Forgetting	.161	.115	.194
Remembering	.202	.136	.241*
Overall	.211	.151	.257*

Two-tailed; * $p < .05$, ** $p < .01$, *** $p < .001$.

NOTE: Higher "overall" typicality scores reflect worse anticipated performance.

were not significantly associated with individual variation in diagnosticity of either own forgetting, $r(82)=.039$, or remembering, $r(81)=.172$.

Evidence of an Implicit Theory of Own Memory

One of the predictions made was that, as per Dweck's (1986) implicit-theory framework, those who treat their memory as stemming more from some underlying memory-trait ought to also express a diminished sense of control over their memory. The simple correlation between MIA-Locus scores, and individuals' diagnosticity scores for their own everyday memory behaviour supported this prediction, $r(84)=-.288$, $p=.009$. When rated diagnosticity of own forgetting and remembering were examined separately, it became apparent that diminished sense of control over memory was more strongly associated with how much individuals viewed their forgetting in terms of an underlying memory-trait, $r(83)=-.354$, $p=.001$, than how much they viewed their remembering as stemming from the same underlying trait, $r(82)=.057$.

Memory Self-Report

Self-reported memory functioning was generally favourable. Subjects in Study 2 offered frequency of forgetting scores ($M=5.116$) similar to those observed in the older sample in the first study ($M=5.135$). The stability of these self-ratings, across replications, in combination with similar mean ratings in a different normal elderly sample, reported by Sunderland, et al., (1986), suggests that the lower EMQ scores observed in older subjects in Study 1 (relative to young S's), were not spurious.

On the abbreviated MIA, subjects generally depicted themselves as having a moderately good memory capacity (MIA-Capacity; $M=53.12$, s.d.$=9.55$; maximum score$=85$), being reasonably motivated to remember or be seen as a good rememberer (MIA-Achieve; $M=57.79$, s.d.$=6.82$; maximum score$=80$), having a moderate degree of control over their memory (MIA-Locus; $M=32.01$, s.d.$=4.83$; maximum score$=45$), and as having shown some minimal decline ($M=53.26$, s.d.$=10.83$, for entire MIA-Change scale; $M=18.40$, s.d.$=4.65$, for MFQ-Retro; maximum score$=90$ for MIA-Change, 35 for MFQ-Retro). When items pertaining to anticipated decline in self and others were deleted from the overall MIA-Change scale, the resulting mean item score

(MIA-Change-Self) was 3.08. Mean item rating for the entire scale was 2.96. The increase appeared due to to the generally lower item scores offered for MIA-Change-Other items ($\underline{M}$=2.54). Mean ratings for each of the two subsets of MIA-Change items were significantly related to each other, $\underline{r}$=.654, $\underline{p}$<.001, and were generally related to the same self-report, and other, variables (see Table 15).

Mean MIA scores, and the pooled MFQ-Retro score, were roughly comparable to those observed for similar-aged subjects in the two elderly samples reported in Hultsch, Hertzog, and Dixon (1987), although the current sample tended to report slightly greater stability in their memory than Hultsch, et al.'s, (1987) samples. Intercorrelations between the various MIA and MFQ scales (See Table 10) were roughly comparable to those reported in Hertzog, et al., (1989). Two exceptions to the pattern observed by Hertzog, et al., occurred in the relationship between MFQ-Retro and MIA scales (Change and Capacity). The correlations between MFQ-Retro and MIA-Change ($\underline{r}$=.636), and between MFQ-Retro and MIA-Capacity ($\underline{r}$=.547), were more robust than what Hertzog, et al., reported. As noted earlier in the Methods section, contiguous presentation in the current study may have inflated the observed correlation between these scales, in comparison to that observed in the Hertzog, et al., study.

Memory self-report measures were significantly related to subjects' affective status. Both EMQ scores, $\underline{r}(84)$=-.327, $\underline{p}$=.002, MIA-Capacity scores, $\underline{r}(84)$=.386, $\underline{p}$<.001, were generally poorer amongst those reporting more negative affect. This is largely congruent with the existing literature (Crook & Larrabee, 1990; Kahn, et al., 1975; Scogin, et al., 1985; West, et al., 1984).

Typicality ratings and memory self-report.

Individuals offered higher overall typicality scores for themselves (i.e., lower expectations of everyday memory performance) also reported more frequent forgetting in themselves (EMQ), $\underline{r}(84)$=.562, $\underline{p}$<.001, and lower memory capability (MIA-Capacity), $\underline{r}(84)$=.535, $\underline{p}$<.001. These correlations are roughly comparable to the range of correlations observed by Hertzog, et al., (1990) for MIA-Capacity and MFQ self-ratings, and by Cavanaugh and Poon (1989) for SIME scores and MIA-Capacity. The

Table 15

Correlation Matrix: Memory Self-Report and Memory-Belief Measures

	MSS	EMQ	Typ Self	MIA Cap	MIA Chg-Self	MFQ Retro	MIA Locus	MIA Achieve	MIA-Chg-Oth
EMQ	.598c								
Typ-self	-.429c	.576c							
MIA-Capacity	.654c	-.531c	-.535c						
MIA-Change-self	.744c	-.567c	-.472c	.631c					
MFQ-Retro	.593c	-.443c	-.454c	.547c	.638c				
MIA-Locus	.420c	-.233a	-.317b	.333b	.441c	.274a			
MIA-Achieve	-.159	.181	.007	.163	-.137	-.042	-.057		
MIA-Chg-Others	.566c	-.443c	-.435c	.553c	.654c	.454c	.583c	-.137	
Diag-self-forget	-.438c	.476c	.590c	-.387c	-.360b	-.325b	-.354b	-.075	-.385c

Two-tailed; *a* $p<.05$, *b* $p<.01$, *c* $p<.001$

relationships observed suggest that typicality self-ratings are a valid form of memory self-evaluation, and that the overall MRQ is a viable instrument for self-other comparisons.

Diagnosticity ratings and memory self-report.

One of the hypotheses tested in Study 1 was that individuals who treated individual instances of everyday memory behaviours in people their own age as more diagnostic, would be more likely to pay attention to, and mentally "log", such instances, resulting in greater self-reported forgetting. This prediction was not supported for younger subjects, and only barely supported in the case of older subjects ($r = .179$). In the current study, self-reported frequency of forgetting (EMQ) was significantly correlated with overall diagnosticity ratings for self, $r(82) = .374$, $p = .001$, and especially diagnosticity ratings of own forgetting, $r(83) = .476$, $p < .001$. Individuals who felt that isolated memory slips were more reflective of more general memory functioning tended to report more forgetting in themselves. Perceived diagnosticity of remembering behaviour was essentially unrelated to self-reported forgetting, $r(82) = -.107$.

The tendency to view memory behaviour as stemming from an underlying trait was also associated with other forms of memory self-report. Individuals who rated their own memory capacity as poorer, $r(83) = -.387$, $p < .001$, and rated themselves as having declined more in the past ten years, $r(83) = -.360$, $p = .001$, also tended to rate their own forgetting behaviours as more indicative of general memory functioning. In short, the increased tendency to view hypothetical instances of one's own everyday memory behaviour as reflective of a trait-like characteristic was associated with generally poorer self-reported memory functioning over a number of measures.

Memory Satisfaction.

Overall satisfaction with memory among Study 2 subjects ($M = 3.21$, s.d $= .71$) tended to be slightly lower than that reported by older subjects in Study 1 ($M = 3.38$, s.d. $= .79$), although still generally favourable, and not significantly different from the comparable elderly sample in Study 1, $t(189) = 1.54$, $p > .10$.

More positive memory satisfaction scores were generally predicted by more positive self-report on the MIA and other memory self-report variables variables (see

Table 15). Individuals who reported greater memory capability (MIA-Capacity), $r(84)=.654$, $p<.001$, or perceived greater control over their memory (MIA-Locus), $r(84)=.420$, $p<.001$, also tended to report more satisfaction with memory. As in the first study, greater self-rated forgetting (EMQ) predicted lower memory satisfaction, $r(84)=-.594$, $p<.001$. This correlation was significantly larger than that observed in the comparable older sample in Study 1 ($r=-.306$), Fisher's $z=2.49$, $p=.013$. Given the somewhat higher affect balance scores in Study 2, compared to Study 1 (6.25 vs 6.89), and the association between EMQ and affect balance in Study 2, a second comparison of EMQ-MSS correlations was conducted, after statistically controlling for affect-balance. The resulting partial correlations between EMQ and MSS scores for each of the two elderly samples ($r=-.274$ for Study 1; $r=-.538$ for Study 2) remained different, even when affect-balance was controlled. $z=2.096$, $p=.036$. It is unclear why the sample from the two studies differed in this regard.

Among those relationships examined, the most robust was that observed between MSS scores and the entire MIA-Change scale, $r(84)=.751$, $p<.001$. When items pertaining to expectations of memory decline were deleted from analysis, the resulting MIA-Change-Self scores remained robustly associated with MSS scores, $r(84)=.744$, $p<.001$. The more decline individuals perceived in their everyday memory functioning, the less satisfied they were with it. A similar result emerged using other measures of self-rated memory decline, such as MFQ-Retro scores, $r(84)=.593$, $p<.001$, or the difference between typicality ratings for self and young targets (an alternative measure of self-rated longitudinal decline), $r(84)=-.559$, $p<.001$. MSS scores were also significantly predicted by mean ratings for the four MIA-Change items addressing expectations of age-related decline in self and others, $r(83)=.566$, $p<.001$. In general, diminished satisfaction with memory was predicted by perceptions of lower memory competence, more frequent forgetting, greater change in memory functioning, greater expectations of decline, and less perceived internal control over level of memory functioning.

In contrast to the low correlation observed between memory satisfaction and diagnosticity scores for same-aged targets in Study 1, diagnosticity of one's own memory behaviour was significantly related to memory satisfaction, $r(82)=-.383$, $p<.001$. Individuals treating instances of their own everyday memory behaviour as more generalizable were generally less satisfied with their memory. Overall satisfaction with memory was more strongly related to what individuals felt they could glean from instances of forgetting, $r(83)=-.438$, $p<.001$, than what they felt they could infer from instances of remembering, $r(82)=-.006$. This difference was statistically significant, $t(82)=3.286$, $p<.01$ (two-tailed). A broader sampling of levels and types of success would make a more persuasive case, but this result is generally consistent with Zarit, et al.'s (1981) observation that older adults can often appear to ignore the daily success they may have in remembering, while making broad negative inferences about their memory from isolated instances of forgetting.

One of the predictions made for Study 2 was that memory satisfaction would be somewhat related to overall life satisfaction (LSI), but more strongly related to memory-specific measures. This was tested by comparing the correlation between MSS scores and life satisfaction, with the correlation between MSS scores and the most straightforward type of memory self-evaluation, MIA-Capacity. The association with self-rated capacity ($r=.654$) was greater than that with LSI scores ($r=.284$), $t(84)=3.944$, $p<.001$ (two-tailed). The same relationship was observed between MSS, EMQ, and LSI scores, $t(84)=2.81$, $p<.01$ (two-tailed). In turn, LSI scores were more closely related to affect balance ($r=.658$) than they were to memory satisfaction scores ($r=.284$), $t(84)=4.016$, $p<.001$ (two-tailed). On the basis of this pattern of associations, satisfaction with memory, per se, appears to be a distinct construct from more general life satisfaction.

Regression analysis of memory satisfaction.

One of the central predictions of the implicit theory approach advanced in the dissertation, is that negative reactions to one's own memory behaviour would be manifested more in individuals holding beliefs about pronounced decline in everyday

memory functioning as an expected part of aging, and beliefs that the individual's own current everyday memory functioning emanates from a relatively uncontrollable, unremediable trait. The alternative hypothesis is one in which discontent with everyday memory is seen as stemming from less interpretive, current self-evaluations, such as how frequently individuals perceive themselves to forget, or their perceived memory capacity in various specific domains. The latter assumes that, outside of negative-affect biases in self-report, individuals are reasonably objective observers of their own memory, and can objectively assess whether it is sufficient to meet their needs or not.

Evaluation of the relative contribution of these different influences on memory satisfaction ratings, was provided by means of a hierarchical multiple-regression analysis. Combinations of selected variables were entered in blocks, according to the model under test. The hypothesized outcome was that measures related to an implicit theory of age-related decline, as well as indices of an entity theory of memory, would significantly predict individuals' memory satisfaction, over and above demographic, affective, and well-being factors. As well, insomuch as implicit theories are assumed to mediate self-observation of memory behaviour, and reactions to that behaviour, it was further predicted that the robust relationship between memory satisfaction and less interpretive types of memory self-description (such as current level of functioning, and perceived changes in functioning) would be dramatically reduced, once variance stemming from implicit theories of memory and aging was removed.

These related hypotheses were addressed by means of two separate multiple regressions employing the same variable sets, entered in different orders. In the first regression (see Table 16), demographic variables (age, sex, education) were entered as a block. Although none of these variables alone was significantly correlated with MSS scores, they were included in the first step of the regression to provide a more stringent test of the relative contribution of other factors, over and above demographic ones. As expected, this block of variables did not significantly predict variance in MSS scores, $F(3,80)=.933$. The second step, entered as a block, included the four measures of subjective well-being and affective status (happiness, self-rated health, life satisfaction,

Table 16

Hierarchical multiple regression: Prediction of memory satisfaction scores

Step	Variables	Multiple-R	Increment to R^2	F for change	p
1	Demographic age, sex, education	.1836	.0338	0.933	.429
2	Well-being/affect happiness, health life satisfaction, affect balance	.4667	.1840	4.470	.0027
3	Beliefs about aging age-decrement, MIA-Change-Other, stereotypes of forgetfulness	.6485	.2027	8.512	.0001
4	Entity-theory beliefs diagnosticity of forgetting, MIA-Locus (control of memory)	.7205	.0986	7.275	.0013
5	Perceived decline MFQ-Retrospective, MIA-Change-Self	.8253	.1621	17.543	.0001
6	Current functioning EMQ, MIA-Capacity	.8416	.0271	3.112	.051

affect balance), each of which had demonstrated significant correlations with MSS scores. In total, these four variables resulted in an increment to R^2 of 18.4%, $F(4,76)=4.47$, $p=.0027$.

In the third step, mean ratings reflecting beliefs about age-related decrement (from the Kafer, et al., questionnaire), beliefs about anticipated age-related memory decline (MIA-Change-Other), and beliefs about normative age-differences in everyday forgetfulness (mean difference between typicality ratings for young and old targets' forgetting), were entered as a block. Together, these three variables predicted an additional 20.3% of the variance in MSS scores, over and above the variance predicted by measures of affect and well-being, $F(3,73)=8.512$, $p=.0001$. On the fourth step, two variables related to adoption of an entity theory of memory (diagnosticity of own forgetting, MIA-Locus) were entered as a block. These variables predicted an additional increment to R^2 of roughly 9.9%, $F(2,71)=7.275$, $p=.0013$. Together, variables related to individuals' implicit theories about their own memory, and what happens with age, predicted some 30% of the variability in their satisfaction with their memory.

More commonly used memory self-report measures were used for the remaining two steps in the regression. Step five included self-ratings of change or decline in memory (MIA-Change-Self, MFQ-Retro). Once variance shared with demographic measures, affect and well-being measures, and implicit theories of memory and aging was partialled out, measures of self-rated change in memory predicted an additional 16.2% in overall memory satisfaction, $F(2,69)=17.543$, $p<.0001$. The final step in the regression included measures of current memory functioning (MIA-Capacity, EMQ). These variables were entered last to test the hypothesis that satisfaction with memory would stem from simple non-interpretive observation of one's own memory. They predicted a small (2.7%), and only marginally significant, increment in variance, $F(2,67)=3.112$, $p=.051$. Individually, the same measures of current and past functioning predicted between 35 and 55 percent of the variance in MSS scores (see Table 15). Estimates of the relative contributions of memory self-description measures (MIA-Change-Self, MIA-Capacity, etc.) and indices of implicit theories about aging and

memory (MIA-Locus, memory stereotypes, age-decrement, etc.), were evaluated by means of a second hierarchical multiple regression in which their general order of entry was reversed, following entry of the first two blocks. Memory self-description measures were entered prior to measures reflecting beliefs about aging and memory (step 5 and 3 reversed, step 6 and 4 reversed). The outcome of this regression is shown in Table 17.

When implicit theories of memory and aging were not statistically controlled, self-ratings of memory decline predicted 43.6% of the variance in memory satisfaction, over and above affect and well-being, and demographic factors, $F(2,74)=46.669$, $p<.0001$. Self-ratings of current memory functioning, entered in step 4, predicted an additional 4.3%, $F(2,72)=5.050$, $p=.0089$. Measures of beliefs about aging, and entity-theory beliefs, each predicted nonsignificant increments to variance in MSS, on steps 5 and 6. Together, all six sets of variables predicted about 71% of the variability in MSS score, $F(16,67)=10.167$, $p<.0001$.

In sum, simple self-ratings of current memory functioning were poor predictors of satisfaction with current memory functioning, when variance due to affective and well-being status, implicit theories about memory and aging, and perceptions of decline, were partialled out. Additionally, although perceptions of decline served, on their own, as effective predictors of memory satisfaction, their predictive power was noticeably reduced when variance pertaining to subjects' implicit theories of everyday memory and aging was partialled out.

Path analysis of memory satisfaction

The implicit-theory interpretation proposed earlier, suggests that individuals' beliefs about growing older do not directly influence their feelings about their own memory, but have a number of indirect effects, modifying individuals' perceptions of current and past functioning, and their beliefs about the "entity"-like nature of memory in later life. The putative direct and indirect effects of elderly individuals' implicit theories about aging and memory were assessed by means of path analysis, using the model depicted in Figure 1. The restrictions imposed by sample size, relative to the number of variables under consideration, precluded use of confirmatory factor analytic

Table 17

Hierarchical multiple regression: Prediction of memory satisfaction scores: Order Two

Step	Variables	Multiple-R	Increment to R^2	F for change	p
1	Demographic age, sex, education	.1836	.0338	0.933	.429
2	Well-being/affect happiness, health life satisfaction, affect balance	.4667	.1840	4.470	.0027
3	Perceived decline MFQ-Retrospective, MIA-Change-Self	.8088	.4363	46.669	<.0001
4	Current functioning EMQ, MIA-Capacity	.8346	.0426	5.050	.0089
5	Beliefs about aging age-decrement, MIA-Change-Other, stereotypes of forgetfulness	.8353	.0011	0.084	.9687
6	Entity-theory beliefs diagnosticity of forgetting, MIA-Locus (control of memory)	.8416	.0105	1.210	.3047

techniques such as LISREL. Consequently, the variables included in the hierarchical multiple regression were reduced to permit path analysis of potential influences on memory satisfaction.

Analysis was conducted using a subset of those variables incorporated in the hierarchical multiple regression. In view of the multiple relationships between memory self-report, and the various affect and well-being measures (affect balance, self-rated health, life satisfaction, self-rated happiness), there was no a priori basis for location of paths to or from these measures. Moreover, inclusion of all possible paths would have resulted in an underidentified model. Consequently, affect and well-being measures were omitted from the path model, and treated as part of the residual variance. The remaining predictor variables included in the hierarchical regression were reduced to a set of five factors scores, based on content and patterns of simple correlations, with each set treated as a single variable in the eventual path analysis. Weighted combinations of each set of variables were derived by using the first factor from principal components analysis of each set. Factor scores were calculated for demographic characteristics (age, sex, and education), subjects' beliefs about aging and memory (age-decrement, target-age differences in typicality scores for forgetting, MIA-Change-Other), beliefs about memory (diagnosticity of forgetting for self, MIA-Locus), perceived change in memory (MIA-Change-Self, MFQ-Retro), and current memory self-rating (EMQ, MIA-Capacity). Computed factor scores were then entered into a series of multiple regressions using the AMOS statistical package (Arbuckle, 1992) to obtain standardized β-weights for the model paths depicted in Figure 2. Indirect and direct affects were then calculated from β-weights (see Table 18).

Beliefs about aging were assumed to have a number of indirect effects on memory satisfaction, and may be depicted as follows:

1) Beliefs about aging are hypothesized to influence individuals' beliefs about their current memory functioning (implicit theory), perceptions of their current level of memory functioning (current memory), and perceptions of previous levels of

Figure 2a

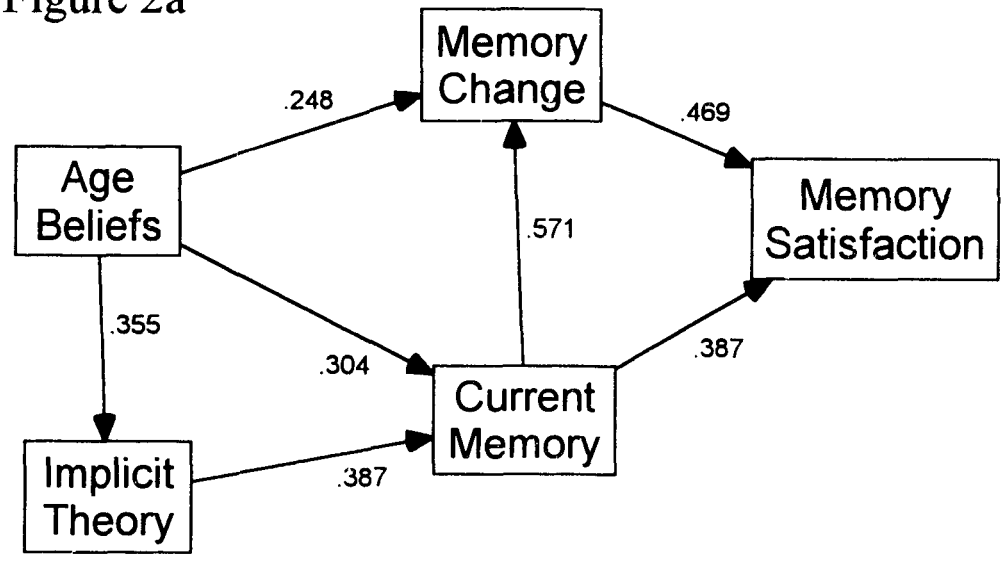
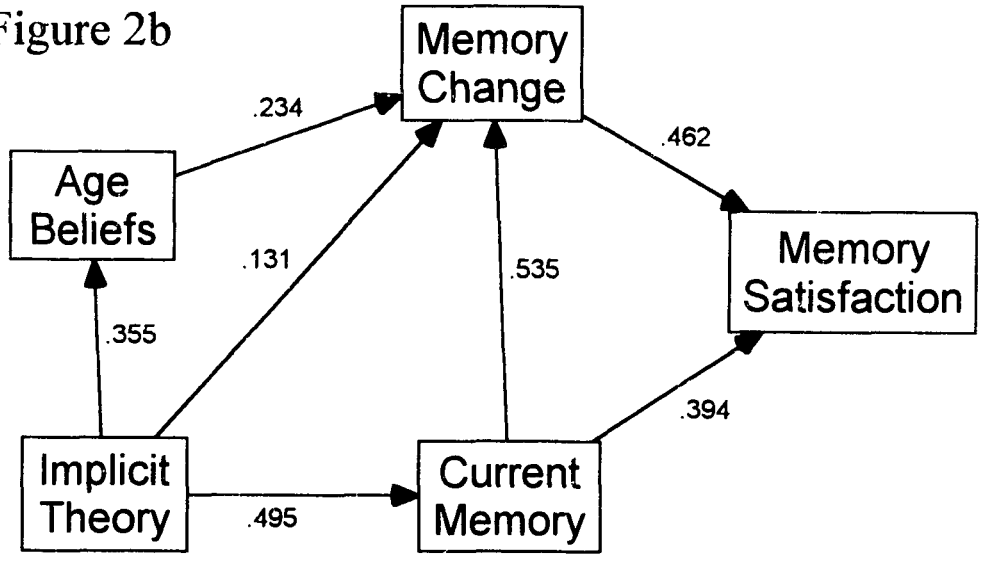


Figure 2b



Path Models for Implicit Theories of Aging and Memory

Table 18

Direct and Indirect Effects of Aging Beliefs and Implicit Theories

	Model 1		Model 2	
	DE	IE	DE	IE
Aging Beliefs				
Current Memory	.304	.137	-	-
Memory Change	.248	.252	.234	-
Memory Satisfaction	-	.324	-	.108
Implicit theory				
Current Memory	.387	-	.495	-
Memory Change	-	.221	.131	.265
Memory Satisfaction	-	.253	-	.416

2) Indices of individuals' implicit theory of current functioning are, in turn, hypothesized to alter the likelihood that individuals pay attention to, and report, instances of forgetting, and treat such instances as cause for discontent.
3) Subjects' perceptions of their present level of functioning are hypothesized to provide an initial anchor for estimates of extent of longitudinal decline (Ross & Conway, 1986), and provide some basis for deciding whether current level of functioning is satisfactory or not.
4) Based on the simple correlations, perceived memory decline is hypothesized to be the major proximal cause of discontent with memory.

Path coefficients for this particular model are shown in Figure 2a, and tabulated indirect and direct effects of the derived variables are shown in Table 18 Of key interest in the analysis are the indirect effect of beliefs about aging, and indices of implicit theory of memory, on memory satisfaction. Analysis of indirect paths indicated that beliefs about aging may have a significant indirect effect on memory satisfaction (total indirect effect=.324). Individuals' implicit theory of their own memory also predicted variance in memory satisfaction, with an estimated indirect effect of .253. Chi-square for the model indicated that it provided a good fit to the data, $\chi^2(3)=5.33$, $p=.149$. This was further supported by a goodness-of-fit index of 0.975, Bentler-Bonett Δ-1 of .970, and Bollen Δ-2 of .987. All of these indices indicate that the model depicted in Figure 2a provided a good estimate of the relations between these sets of variables. In all the model predicted an estimated 12.6% of the variance in the combined implicit-theory variables, 32.6% of the variance in the combined current memory variables, 51.2% of the variance in the combined self-rated memory-change variables and 61.6% of the variance in memory satisfaction scores.

This model was tested against an alternative model, depicted in Figure 2b, in which individuals' implicit theories of memory were treated as a type of personality dimension, and an exogenous variable, influencing reported beliefs about aging, in addition to perceptions of current and previous memory functioning. Although this model also predicted much of the variance in memory satisfaction (60.2%), it provided

a somewhat poorer fit to the data, $\chi^2(3) = 12.33$ $p = .006$. Other indices of goodness-of-fit were also reduced somewhat, GFI = .944, Bentler-Bonett Δ-1 = .931, and Bollen Δ-2 of .947. Estimated multiple-R^2's were .245 for current memory, .493 for memory change, and .612 for memory satisfaction.

In view of the fact that a number of the more highly intercorrelated measures incorporated in this analysis (memory satisfaction, MIA-Locus, MIA-Change-Self, MIA-Capacity) stemmed from the same general questionnaire, and conformed to the same general rating scheme and phrasing, the current data likely provide an overestimate of the parameters depicted, and the proportion of variance predicted for each of the putative constructs. Moreover, as the hierarchical multiple regression indicated, some portion of predicted variation attributed to observed variables here may likely stem from the affect and well-being measures which were deleted from this particular analysis. That being said, the theoretically-driven model of the observed data indicates that a not insubstantial proportion of the variability in memory self-report may be predicted by social-cognitive influences on how individuals interpret, attend to, and recollect their own memory performance.

Chapter Eleven

Discussion

Typicality Ratings

Replicating what was observed in the first study, older adults voiced significantly different expectations about the everyday memory performance of younger and older adults, resulting in generally lower expectations of older targets. Congruent with the findings of Heckhausen and Krueger (1993), and Ryan and See (1993), subjects tended to dissociate themselves from what they saw as typical of other older adults; rating themselves worse than 25-30 year-olds but better than the average 65-70 year-old. This was echoed in subjects' self-ratings of generally modest negative longitudinal change in their own everyday memory (mean ratings for MIA-Change-Self and MFQ-Retro). Ryan and See (1993) also observed that expectations for longitudinal stability in one's own memory functioning were somewhat better than expectations for others.

One possible interpretation of these data is that the inclusion of individuals younger than the "old" targets (between 55 and 64 years of age) may have resulted in mean typicality ratings being appropriately lower for self than ratings for old targets. In two previous reports by Ryan (Ryan, 1992; Ryan & See, 1993), adults gave self-ratings, and ratings for old and young targets, on modified versions of the SIME, and generally rated their own memory functioning as better than older targets. Although both reports included post-retirement-age subjects, the large majority of subjects were younger than the old targets they were rating, yielding mean ratings which may have been realistically better for self than for older targets, in the absence of any attempt to engage in self-enhancement.

A similar confound between age-distribution and self-enhancement influences on ratings in the current study, was addressed by comparing self-ratings for those younger than the target age-range (age 55-64; $n=30$), against the remaining subjects, many of whom were older than the "old" targets. This comparison revealed a small, but non-significant, difference in mean overall typicality rating for self between the two age-ranges ($M=2.71$ for subjects 55-64; $M=2.87$ for subjects 65-84), $t(82)=1.353$, $p=.183$.

Examination of differences between overall typicality ratings for self versus old targets also failed to reveal any significant influence of subject age, $F(1,82)=1.77$, $p=.187$. A stronger test of the hypothesis that self-other differences in MRQ-typicality ratings correspond to characteristics of the sample age distribution was provided by examining differences in typicality ratings for self versus old targets, including only subjects 65 years or older. A repeated-measures ANOVA still detected a noticeable difference between subjects' overall typicality ratings for themselves, and for 65-70 year-old targets, $F(1,53)=12.13$, $p=.001$; adults saw their own everyday memory functioning as better than that of the average older adult.

Consequently, rather than a spurious outcome of sample characteristics, more positive typicality ratings for self on the MRQ, relative to ratings for other elderly, appear to be consistent with Heckhausen and Krueger's (1993) contention that older adults use a self-enhancement strategy. That is, older adults maintain their self-esteem by seeing themselves as generally better off than others of similar age (in this case, having a better memory), even though they may acknowledge some degree of decline in themselves. The results of Study 1, and those of other studies (McFarland, et al., 1992; Rothbaum, 1983) suggest that this self-enhancement is not achieved on the part of older adults by deliberately exaggerating the characteristics of their peers. Indeed, both young and old subjects in Study 1 gave virtually identical ratings of old targets, differing only in their ratings of young targets.

Validity of the MRQ typicality ratings.

The validity of assertions made on the basis of MRQ-Typicality ratings (test-retest reliability notwithstanding) depends partly upon the validity of target-age differences on the MRQ as a measure of age-stereotypes, and the validity of typicality-ratings for self as a valid index of memory self-evaluation. To date, no published reports have examined the relationship between specific measures of age-stereotypes for memory performance and more general age-stereotypes. The current data suggest that age-stereotypes of memory, as evidenced by target-ratings, while not isomorphic with general age-stereotypes, are still significantly related to them. This was demonstrated by the

significant correlation between young-old difference scores and the age-decrement scale of the Kafer, et al., (1980) questionnaire. Further validation of the MRQ as an index of age-stereotypes was provided by the significant correlation between young-old difference scores, and mean ratings for the items on MIA-Change that referred to expectations of decline (MIA-Change-Other, $\underline{r}$=-.372).

Validation of typicality *self*-ratings as an index of beliefs about own memory capability was provided by the robust correlations between MRQ self-ratings and other previously validated memory self-report measures (EMQ, $\underline{r}$=.578, and MIA-Capacity, $\underline{r}$=-.535). Each of these correlations is in the range of those observed between the SIME and MIA (Cavanaugh & Poon, 1989), and between the MFQ and MIA (Hertzog, et al., 1989). Consequently, comparisons involving typicality ratings for targets, or for self, may be construed as reasonably valid tests of hypotheses about stereotypes of aging and about how adults see their own memory in comparison to others.

The Role of Anchors in Memory Self-Report

One of the suggestions raised earlier in the literature review, was that age trends in memory self-report are more likely to occur when subjects compare themselves to some idealized standard. Although not a focal point of the two studies reported here, to some extent, this contention was addressed, and supported. In Study 1, when older and younger subjects depicted their own memory using an anchor-free method (EMQ ratings), older adults reported better everyday memory than young adults. In Study 2, older adults provided EMQ self-ratings which were essentially identical to those offered in Study 1, but when asked to evaluate their memory by means of the MRQ-typicality ratings, they depicted themselves as having a significantly poorer memory than younger targets. There are clearly some limitations on the strength of any inferences drawn from these data. In the absence of direct comparison of self-ratings for young and old subjects, it is difficult to say whether older subjects' typicality self-ratings are necessarily higher than those offered by young subjects, even though they may describe themselves as having a worse memory. Nevertheless, MRQ typicality-ratings indicate unequivocally that when asked to consider their *current* functioning compared to the anchors of

anticipated young and old performance, without reference to how it might have changed, older adults see it as worse than that of hypothetical younger persons.

Diagnosticity of Memory

In Study 1, performance expectations of old targets predicted how diagnostic their memory behaviours were perceived to be. In the current study, target ratings were also found to be related to perceived diagnosticity of one's o*wn* memory behaviours. The more discrepantly subjects perceived the everyday memory behaviour of young and old targets, the more likely they were to treat hypothetical instances of their own memory behaviour as representative of their overall memory functioning.

One of the possible interpretations of this relationship is that correlations between diagnosticity for self and typicality-ratings for targets were spurious outcomes of the relationship between typicality ratings for self and others. To some extent, ratings of others may be constrained by how individuals rate themselves on the same scale. In view of the somewhat lower correlations observed between diagnosticity ratings and typicality ratings of targets, relative to those between those exclusively for self, these may be indirect outcomes of self-ratings. Examination of the simple correlations between typicality ratings for self and targets indicated that age-stereotype (difference) scores were only marginally correlated with self-ratings in the case of overall typicality scores ($r=.20$, $p=.07$), and uncorrelated in the case of typicality of forgetting ($r=.09$). The relative independence of typicality self-ratings, and measures of stereotypes, suggests that the relationship between stereotypes and diagnosticity stems from the stereotypes themselves, and not from an adventitious relationship with self-ratings on the same questionnaire and rating scale.

Although the observed pattern suggests that beliefs about age-related decline in memory may render everyday memory behaviour more information-laden in older adults, diagnosticity ratings offered for self in Study 2 were generally well below what similar elderly subjects had given for young and old targets in Study 1. In some respects, this finding is not surprising, and is consistent with what would generally be predicted by attribution theory. Individuals tend to see failures in others as more dispositionally-

based, and failures in themselves as more situationally-based (Ross, 1977). Forgetting-items in the MRQ may be more likely to be interpreted in terms of transient or situational factors when it comes to rating one's self, resulting in lower overall mean ratings.

Other studies indicate that this may not necessarily be the case (Cavanaugh & Morton, 1988; Weaver & Lachman, 1990), with older adults offering more internal attributions for their memory failures. The findings from a smaller sample in a third study, reported here, suggest that both positions are, in some sense, true. When subjects were asked to provide ratings of self, and young and old targets using a within-subject technique, self-ratings for diagnosticity of memory behaviour were lower than those for old targets (reflecting a tendency to see one's own behaviour as less dispositionally-based than that of others), but higher than those for younger targets (reflecting a tendency to give more dispositional attributions as a function of age).

The lower diagnosticity ratings given for self may also be part of the more general self-enhancement (Heckhausen & Krueger, 1993) strategy discussed earlier. Older adults may maintain their self-esteem not only by viewing their own memory as more longitudinally stable than that of others (as reflected in typicality ratings for self and targets), but by seeing their own everyday memory behaviours as less informative than that of others (although replication with a larger sample, using a between-subjects technique would make a more compelling case).

The difference in diagnosticity ratings for own memory behaviours and same-aged others may partly explain the discrepancy between studies in which the everyday memory lapses of elderly targets were perceived as a stronger indication of mental difficulty (Erber & Rothberg, 1991; Erber, et al, 1990a, 1990b), and other studies which failed to observe age-related increases in expressed concern over one's own memory (Cordoni, 1981; Crook & Larrabee, 1990; Erber, Szuchman, & Rothberg, 1992). Logically, older adults who construe common instances of memory failure as a sign of mental difficulty in people of their own age group ought to generally express more concern about any lapses they note in themselves. The current findings, however, suggest that perceptions

of one's own memory are not isomorphic with perceptions of other elderly. Consequently, increased sensitivity to the memory lapses of other adults may not necessarily translate into sensitivity about one's *own* memory to any great degree. The discrepant findings in other studies do not conflict, so much as address disconnected types of judgments.

Clearly, what are referred to as diagnosticity ratings here are not identical to ratings of *clinical* diagnosticity (i.e., a sign of mental difficulty). However, insomuch as both types of ratings reflect trait-like interpretations of isolated memory behaviours, the current findings seem to reconcile this discrepancy in previous reports. The more appropriate design for resolving the issue would be to obtain diagnosticity ratings for self, as well as younger and older targets, concurrent with measures of subjects' concern over their own memory, and clinical diagnosticity ratings (similar to those employed by Erber and colleagues) for other elderly. The prediction would be that the more similar diagnosticity ratings are for self and other elderly, the more concern over *own* memory would tend to mirror perceptions of memory difficulties in other elderly.

The pattern of correlations with diagnosticity ratings observed in Study 2, and the findings of the third study, also shed some light on the results of Study 1. In the first study, both younger and older adults rated old targets' behaviours as more trait-like than young targets' behaviours. Contrary to expectations, older individuals who gave higher diagnosticity ratings for their own age-group did not show any greater dissatisfaction with their own memory or report more frequent forgetting in themselves. In contrast, when diagnosticity ratings for *self* were examined in the current study, individuals treating their own memory behaviour as more trait-like reported both lower satisfaction with their memory, and more frequent forgetting. This occurred despite the lower diagnosticity ratings given for self in Study 2, and similar variability in ratings of old targets in Study 1 and ratings for self here (s.d.'s of .64 and .62, respectively). Path analysis suggests that beliefs about memory and aging in others have an indirect path to perceptions of the adequacy or level of one's own memory functioning, perhaps by influencing individuals' implicit theories of the basis of their *own* memory.

Perceptions of the trait-like nature of one's own memory behaviour were also significantly related to perceptions of control over memory. In particular, individuals who rated hypothetical instances of forgetting in themselves as more reflective of general memory functioning, were also more likely to indicate that they perceived little control over maintenance or improvement of their memory functioning, $r(83)=-.354$, $p=.001$. This pattern is congruent with Dweck's (1986) depiction of an entity theorist as one who would see memory as both trait-like and uncontrollable.

Unlike diagnosticity ratings, however, perceptions of control over memory were not associated with age-stereotypes of memory, $r(84)=-.085$, $p>.4$. There are several possible reasons for this. First, subjects' identification with memory-stereotypes may mediate the influence of such stereotypes on their sense of control. When identification with memory stereotypes was statistically controlled in an additional analysis, however, memory-stereotypes remained unrelated to MIA-Locus scores. A second possibile explanation concerns the content of the MIA-Locus items themselves. Examination of the content of MIA-Locus items indicates that some items either explicitly refer to decline as an inevitability, or implicitly refer to it as a possibility, while other items revolve around the likelihood that one's memory can be improved upon, per se, regardless of one's age or expectations about adulthood. Conceivably, some of the MIA-Locus items may be more related to personality variables, whereas others may be more related to social-schemas of aging. In view of the difficulty of placing any given item exclusively in one of these categories, this remains an empirical question, and a potential confound in the current study. The absence of other comparable instruments addressing the same construct also poses some limitations on how these results should be interpreted.

Finally, the relationship between EMQ scores and diagnosticity self-ratings is consistent with what would be predicted by self-schema theory (Markus, 1977). Individuals who treated isolated memory slips as more indicative of general memory ability (i.e., saw their memory in more trait-like terms) reported more everyday forgetting. This finding is also consistent with Cavanaugh, et al.'s (1993) suggestion that degree of schematicity in later life may have some bearing on memory self-report. On

its' own, however, this finding should be treated in a relatively conservative manner, since it is not unreasonable that individuals who actually *do* forget more frequently might see their memory in more traitlike terms. This suggests a performance/self-rating/belief relationship analogous to that suggested by other authors (Cornelius & Caspi, 1986; Grover & Hertzog, 1989).

In sum, although older adults appear to treat their own everyday memory performance as better, and somewhat less meaningful, than that of other older adults, *individual differences* in the perception of memory as trait-like were predictive of how subjects felt about their memory in other ways. Older adults' perception of the trait-like character of their memory appears to be influenced by the stereotypes they hold.

Perceptions of change

One of the predictions of Study 2, and one of the more interesting findings, is the linkage between individuals' perceptions of change in their own memory, and their beliefs about aging. This is particular intriguing insomuch as MIA-Change scores have traditionally demonstrated the most robust age differences among the MIA scales (Hultsch, et al., 1988). In the current study, self-rated decline also demonstrated the most robust correlations with measures of age-stereotypes from among the numerous memory self-report measures employed. The separation of original MIA-Change scale into items pertaining explicitly to memory change that had already occurred in one's self, and items pertaining to expected change, provided a stronger test of the relationship between stereotypes of aging and perceptions of self. Perceptions of stereotypic memory decline and general age-related decrement were both significantly correlated with MIA-Change-Self scores, and regression analysis indicated that beliefs about aging still predicted a significant proportion of the variability in self-rated change, even when other influences on self-reported change were taken into account. This was true using two different measures of self-rated memory change.

Regression analysis also suggested that increased identification with old age may mediate the degree to which stereotypes of decline are mapped onto the self. Subjective age (one of the measures of age identification) tends to be predicted by measures of

affect and subjective-well being (Linn & Hunter, 1979; Milligan, Powell, Harley, & Furchtgott, 1985; Montepare & Lachman, 1989; Steitz & McLary, 1988). Affective status, in turn, is predictive of memory self-report (Crook & Larrabee, 1990; Erber, Szuchman & Rothberg, 1992; Gilewski, et al., 1990; White & Cunningham, 1984). The potential for confounding of age identification with extraneous, non-belief variables was reduced by partialling out variance stemming from affect and well-being measures in an earlier step of the regression. Any variance in self-rated change predicted by measures of age identification was over and above variance predicted by affect and well-being. Identification with stereotypic elderly memory, itself, was also not significantly related to any of the measures of affect and well-being. Consequently, variance predicted by identification variables would seem to be variance stemming from identification per se, rather than the affective status or well-being associated with feeling older.

Although MFQ-Retro scores were predicted by beliefs about aging, measures of identification with old age were not predictive as in the case of MIA-Change-Self scores. As was noted earlier, the MFQ-Retro score consists of pooled self-ratings of change over relatively short periods of time (1 and 5 years) as well as longer periods (10 and 20 years, since age 18). Additionally, MFQ-Retro scores tend to be less correlated with subject age than MIA-Change scores (Gilewski, et al., 1990), and may have more to do with affect and well-being, and less with stereotypes of aging. In keeping with this, affect and well-being variables were somewhat more closely associated with MFQ-Retro scores in the regression analysis, than they were with MIA-Change-Self, accounting for just under 21% increment to R^2 in the one case, and just under 14.4% in the other. Conceivably, identification with old age may be pertinent only to those self-rated change measures that are more closely related to subject age, or those where subjects contrast themselves in the present with a single distal retrospective reference point.

The potential causal relationship between ratings of age-related memory change in self and others may also go in the other direction. That is, adults may estimate the amount of change in themselves, and generalize to others, yielding a similar correlation to that seen here. There are several arguments to counter this. First, retrospective self-

assessment may generally be more schema-driven, the more remote the period, or the larger the interval, being retrospected about (Bradburn, Rips, & Shevell, 1987). Second, there is laboratory evidence from social cognition studies, that individuals will report change in themselves, consistent with their beliefs about the dynamic nature of that trait, despite verifiable stability in the trait (Ross & Conway, 1986). Although they could not verify the extent of actual longitudinal behavioural change in the elderly sample, McFarland, et al., (1992) observed that older adults' retrospective self-ratings across a variety of personal dimensions were in a direction consistent with their stated beliefs about the direction and extent of normative change in those dimensions. When compared against what younger individuals, currently that age, reported for themselves on those same dimensions. older adults' restrospective self-estimates tended to be more positive than younger adults current self-estimates for those traits believed to decline with age. Consequently, there is reason to suspect that older adults' self-rated change is a description of what they think tends to happen in people, rather than an egocentric generalization from self to other elderly.

It is also difficult to argue the case for self-to-other generalizations in the current data set, given that perceptions of memory decline already transpired in one's self were related to perceptions of general decline amongst elderly adults (age-decrement), expected future memory decline (MIA-Change-Others), and apprehension about growing older (Kafer, et al., Fear-of-Aging scores, $r=.290$, $p=.008$); the latter two of which are prospective ratings. Egocentric mapping of self-schemas onto schemas about others remains plausible as long as such mappings are confined to perceptions of what has already occurred. Once future expectations become involved, individuals may be considerably more likely to draw on schemas to make inferences, and the likely direction of mapping is the reverse; from schematic views of relevant others onto one's self.

Finally, subjects generally rated their own everyday memory (typicality for self) as less discrepant from the average young person's than they rated other persons of their own age group. If the direction of influence was from self-perceived change to stereotypes, it is unclear why individuals who report relatively positive mean MIA-

Change-Self and MFQ-Retro scores, and modest differences between themselves and young targets, would report noticeably greater memory decline in other typical elderly. Conceivably, those objectively perceiving decline in themselves could maintain self-esteem by exaggerating the amount of decline in others. However, given the similarity in ratings of old targets by young and old subjects in Study One, and in other reports (e.g., Ryan, 1992), it is unlikely that estimates of other elderly are adjusted in any special fashion by subjects. In view of these arguments, one may reasonably conclude that the overall pattern of data in Study 2 is consistent with the view that older adults' perceptions of memory change in themselves are partly driven by their perceptions of what is likely to have happened over the interval in question. To a lesser extent, it is also mediated by whether adults identify with the category of individuals that undergoes these changes. Clearly, this does not preclude the possibility that there is some reciprocal relationship between what individuals believe to be true for themselves and for others. However, the arguments offered here suggest that, at the very least, the role of social-schemas as an influence on self-evaluation may not be discounted.

Current status as reference point.

The model of retrospective evaluation advanced by Ross (1989; Ross & Conway, 1986) posits that individuals first evaluate themselves in the present, and then calibrate their retrospective evaluation of change based on their implicit theories of lifespan change or stability (bearing in mind there may also be many schematic and affective influences on how individuals evaluate themselves in the present). Ross makes no explicit statistical assumptions, however the correlations between MIA-Change-Self scores, and each of three reference points (provided by typicality ratings for young, self, and old) were consistent with the view that perceptions of change may be more directly tied to present self-perceptions than to retrospective anchors. Perceptions of change appeared more closely related to typicality ratings for self (r=-.472) than they were to perceptions of young targets (r=.223), old targets (r=-.282), or the difference between targets (r=-.383). In particular, the correlation between MIA-Change-Self and typicality ratings for self, was significantly larger than that between MIA-Change-Self and typicality ratings

for young, $t(84)=2.04$, $p<.05$ (two-tailed). A clearer test of this hypothesis is provided by comparing the correlation of self-rated memory change with adults estimates of their own current forgetfulness, $r(84)=-.577$, (which were demonstrated to be lower than younger adults' in Study 1), versus the relationship with their expressed beliefs about the extent of age-related increase in forgetfulness, $r(84)=-.329$. In this case, self-rated memory decline was more significantly related to perceptions of current forgetfulness than to beliefs about normative age-changes in forgetfulness, $t(84)=2.18$, $p<.05$ (two-tailed).

Several other studies have reported robust correlations between measures of current functioning, such as the MIA-Capacity scale and the SIME, and the overall MIA-Change scale (Cavanaugh & Poon, 1989; Hertzog, et al., 1989), providing additional support for Ross and Conway's (1986) model of retrospective evaluation. Although three measures of current functioning were used in Study 2 (MIA-Capacity, EMQ, typicality-self), only typicality ratings and MIA-Change-Self items were examined to provide a more stringent test of the relative importance of different reference points in deriving a subjective sense of memory change. The correlations obtained between MIA-Change and EMQ or MIA-Capacity scores were similar to those found in previous studies (-.577 and .648, respectively). Similar, though less robust, relationships were also observed between measures of current memory functioning and the MFQ-Retro measure (-.443 to .547). In summary, the results of Study 2, and those of other previous reports, are consistent with Ross and Conway's (1986) contention that individuals resort largely to current self-evaluation as the initial data for evaluating change in themselves, before considering either real or schema-driven retrospective data about themselves.

Control and perceived decline.

Sense of control over memory is one facet of individual's sense of memory self-efficacy, and also one of the metamemory dimensions which has consistently demonstrated age differences (Hultsch, et al., 1988). Perceptions of one's own memory functioning as malleable and maintainable are generally correlated with perceptions of decline in one's self (Hertzog, et al., 1989), and in others (Heckhausen & Baltes, 1991),

and were also observed to be so in Study 2 (see Table 13). There are a number of ways in which this finding might be interpreted. On the one hand, it is not surprising that those who detect an undesirable change in their mental functioning should sense it to be less controllable than they would like (Heckhausen & Baltes, 1991). To the extent that such change is real (Cornelius & Caspi, 1986; Grover & Hertzog, 1989), individuals who notice such change should also report diminished control over memory.

An implicit-theory interpretation of the Locus/Change relationship, however, would suggest that notions of the controllability of one's memory are part of their implicit theory, and that measures of perceived control and perceived-decline are also influenced by an underlying set of beliefs about what probably happens to memory with age. Individuals who believe that memory declines, and becomes more trait-like and uncontrollable, would also demonstrate the type of correlation typically found. The data from Study 1 suggest that at least two of these components (expected decline and trait-like nature) are present *prior* to any real age-related decline. Using single-item measures Heckhausen and Baltes (1991) have also demonstrated that expectations of decline and control are correlated.

In the current data set, and those of studies examining performance/self-perception relationships (Cornelius & Caspi, 1986; Grover & Hertzog, 1989), variables reflecting each of these two interpretations of perceived change and control account for, at best, 15% of the variation in self-ratings, leaving substantial variance unexplained. Conceivably, both interpretations are somewhat correct, and both sets of factors contribute to variance. Individuals are undoubtedly capable of detecting, and do not likely ignore, real changes in their functioning when constructing some sense of their memory functioning in preparation for answering questions about it (within the constraints suggested by Reisberg, et al., 1986), but neither are they heedless (though not necessarily conscious) of what might *conceivably* be true for themselves, given what seems to happen to everyone else (McFarland, et al., 1992).

Lachman (1983) has suggested that perceptions of control over intellectual functioning may also be predicted from generalized locus-of-control, in addition to actual

functioning. To some extent, this approach was tested by the alternative path analysis shown in Figure 2b. Individuals' theory-like beliefs about their memory functioning were treated as an exogenous variable, emerging from some unspecified personality dimension, rather than from beliefs about aging per se. Though not compelling, the results of the path analysis suggest that a better fit is obtained with the current data and variables if perceived control over, and diagnosticity of memory, is treated as stemming from age-beliefs. On the other hand, simple correlations indicate that MIA-Locus scores, by themselves, were unrelated to any of the general or memory-specific age-stereotype measures. In this regard, the current data are also in partial agreement with Lachman: perceived control over memory may stem from some more fundamental sense of control, rather than from stereotypes of aging.

It remains conspicuous, however, that control and diagnosticity-beliefs are related, and predict the type of outcome which is consistent with an implicit theory approach. Conceivably, emergence of a strong entity theory of memory in late life is something that may depend on *both* personality and beliefs about aging. Again, the more persuasive test of any of these various competing hypotheses would require concurrent assessment of stereotype beliefs, relevent personality dimensions, memory self-perceptions, and performance in a longitudinal manner.

Validity of the Memory Satisfaction Scale

Overall satisfaction with one's own memory was investigated as an index of reactions to everyday memory behaviour which were not explicitly tied to fears of dementia. Some preliminary validation of memory satisfaction scores was provided in both Study 1 and Study 2 by their association with measures of affect and well-being, and self-rated frequency of forgetting. In Study 2, further validation was provided by the correlation between MSS scores and other measures. In addition to EMQ scores, MSS scores were also robustly correlated with two other self-report measures of current memory functioning: MIA-Capacity scores, and typicality scores for self (see Table 13). The association of lower memory satisfaction scores with greater perceived memory decline (MIA-Change-Self, MFQ-Retro), and diminished sense of control over memory

(MIA-Locus) also further validates MSS scores as a useful memory self-report measure. Tests of the differences between correlations for MSS and LSI scores with each other, and with other pertinent variables, also indicated that life satisfaction and memory satisfaction appear to be related, but distinct, constructs. Further substantiation of satisfaction with memory as a distinct construct would ideally be provided by a larger sample, and some form of confirmatory factor analysis.

Memory Satisfaction as an Outcome of Other Beliefs

Within the approach advanced in the dissertation, overall satisfaction with memory is treated as one of the sequelae of individuals' implicit theories of aging and of their own memory. The hierarchical regressions undertaken to predict MSS scores, reflect this particular model, which is similar to that proposed by Cavanaugh, et al. (199?). The regression itself indicated that conventional forms of memory self-report (MIA-Capacity/EMQ) were only minimally related to individuals' overall feelings about their memory when factors related to their interpretation of their memory were first taken into consideration. Stated in more common-sense terms, observations of one's self *now* may have considerably less influence on how people feel about their memory than whether one's memory appears to match an unpleasant stereotype over the long haul.

In some respects, it is the sense that one is on a stereotypic "slippery slope" in terms of memory functioning, that appears to lead to extreme discontent and, presumably, a tendency toward presenting with clinical memory complaints (although the relation between memory satisfaction and presenting complaints awaits substantiation). This was echoed by subjects feelings about growing older in general. In the current sample, the fear-of-aging scale from the Opinions on Aging Booklet was noticeably predicted by every single measure of subjects' affect and well-being that was employed in the study (r's of .32-.51): individuals with a dismal view of growing older were basically unhappy, discontent people.

When implicit theory variables were entered after memory self-report variables, they failed to predict any significant increment in variance accounted for in memory satisfaction. There are several ways this finding could be interpreted. The simplest

explanation would treat this as evidence that implicit theories of memory and aging are less relevant to perceptions of the adequacy of one's memory than more direct self-report of current memory functioning and perceived decline. Alternatively, these findings may be construed as reflecting the degree to which variance stemming from implicit theories measures is absorbed or masked by self-report measures which are normally influenced by them. The variance in self-rated change predicted by implicit theory measures, coupled with the noticeable drop in MSS variance predicted by self-rated memory-change measures when implicit-theory measures (of both age-stereotypes and own memory) were statistically controlled (from 43.6% to 16.2%), supports this contention.

When a similar regression was conducted with the entire sample from the third study (ages 20-71; including middle-aged persons between 35 and 50 years of age; substituting the Geriatric Depression Scale for the happiness self-rating), a moderately attentuated, but analogous result emerged. Demographic factors again had a nonsignificant effect, affect/well-being predicting 14.5% of the variance in MSS scores, age-beliefs predicting an additional 14.1%, implicit theory of memory variables predicting an additional 5.8%, self-rated change predicting an additional 12.9% and current functioning predicting an additional 5.4%. Overall, the same sets of age-beliefs and implicit memory-theory measures predicted 20.9% of the variation in MSS scores, compared with 30.1% in Study 2. This replication, albeit with a smaller (and less old) representation of elderly suggests that the pattern found in Study 2 is relatively reliable.

Hultsch, et al. (1988) and Hertzog, et al. (1989) suggest that the MIA-Change, MIA-Capacity, MIA-Locus, and MFQ-Retro scales all load on an underlying memory self-efficacy factor. Not inconspicuously, they were all significantly related to the memory satisfaction measure employed here and, with the exception of MIA-Locus, were also directly and indirectly related to beliefs about age-related changes across the populace. This suggests that the overall memory self-efficacy factor may, in a general sense, be influenced by implicit theories of aging. The extent to which the memory satisfaction measure was, in turn, predicted by the combined memory self-efficacy measures in the path model (Figure 2a), and by implicit theory and self-efficacy measures

in the hierarchical regression, further suggests that something akin to what might present as a clinical memory complaint could stem from something other than objective observation of own memory functioning or depression (Cavanaugh, et al., 1993). Again, this assumption awaits a more compelling test.

Summary and Conclusions

Support was provided for all five major hypotheses pursued in Study 2, providing confirmation of the expected antecedents and sequelae of individuals' implicit theory of their own memory. Age-stereotypes of memory decline were observed in the current sample of elderly, similar to those in Study 1. Individuals who voiced stronger age-stereotypes of memory decline in others tended to see their own memory as having declined more. They also tended to read more into their own memory behaviour, perceiving it in a relatively more trait-like fashion. Individuals who perceived their own memory behaviours as more diagnostic of overall memory ability also tended to report a diminished sense of control over their memory. Both control and diagnosticity were, in turn, associated with predicted patterns of memory self-report. Individuals treating their memory behaviours more diagnostically, reported poorer memory functioning and expressed less satisfaction with their memory overall. The same was true of individuals perceiving less control over their memory. These findings are consistent with what would be predicted on the basis of both Dweck's (1986) notion of an implicit entity theory, as applied to memory functioning. Finally, when other factors known to be related to memory self-report were statistically controlled in a hierarchical multiple regression, measures of beliefs about memory, and about aging, still predicted significant amounts of variance in several types of memory self-report.

Taken together, these findings are also generally supportive of McFarland, et al.'s (1992) contention that implicit theories of lifespan change and stability may influence individuals' retrospective self-evaluation. They also support Ross' (1989) contention that naive theories of behaviour as based on stable internal traits may be orthogonal or non-orthogonal to naive theories of behaviour as changing longitudinally, depending upon the individual. Thus, implicit theories of own memory in later life appear to be nested

within a larger implicit theory of what generally happens to individuals over their lifespan. This includes memory functioning becoming more trait-like and less controllable or remediable with increasing age.

The findings of Study 2 also support the contentions of Cavanaugh (1987) that memory self-report in older adults may be related to how they view the past, and the kinds of social-schematic knowledge they invoke when making memory self-evaluations. Perhaps most noticeably, the amount of variance in memory self-report that was predictable by measures of implicit theories of memory, was equivalent to, or greater than, that generally found to be predicted by measures of actual memory performance (Dixon, 1989). One may reasonably conclude that beliefs about memory and age constitute substantive influences on the results of metamemory questionnaire studies, and that they may account for a significant portion of the unexplained variance in those studies examining the accuracy of adults' declarative knowledge about their memory.

Chapter Twelve

General Discussion

The two studies presented addressed hypotheses concerning the putative role that stereotypic views of aging may play in the memory self-perceptions of adults. This chapter considers a number of the findings in light of both the stated goals of the dissertation, and existing literature.

Do Implicit Theories Play Any Role in Memory Self-Report?

The implicit-theory approach advanced in the dissertation was depicted as having two components: a role for individuals' naive theories of aging and age-related memory decline, and a role for their naive theories of their own current memory. Study 1 demonstrated the existence of age-stereotypes of both the level of memory performance, and the perceived meaning of such performance, and also suggested that older adults may hold a rosier view of youthful memory capabilities than youth hold of themselves. Although beliefs about meaningfulness of everyday memory behaviour were linked to beliefs about stereotypic decline for older targets, such beliefs appeared not to translate into variations in stated feelings of satisfaction with own memory. Study 2 indicated, however, that stereotypic beliefs about memory and aging translated into beliefs about the meaningfulness of one's *own* behaviour, which in turn predicted both self-perceptions of memory functioning, and individuals' stated satisfaction with their memory. Additionally, stereotypic beliefs about memory and aging were predictive of self-perceptions of current and prior level of memory functioning. Beliefs about the degree to which one's own memory behaviour is trait-like were associated with perceptions of control over memory, in a manner predicted by Dweck's (1986) implicit theory model. Both of these dimensions, in turn, predicted other aspects of memory self-report.

Together, these findings suggest that memory self-report may be influenced by social-schemas of age-related memory decline (Cavanaugh, 1987; Cavanaugh, et al., 1993) in both a direct and indirect manner, and that implicit theories of one's own memory may be influenced by implicit theories about everyone else's memory. They are also congruent with Devolder and Pressley's (1989) suggestion that self-perceptions of

decline, in particular, may be exaggerated in older adults via the influence of such stereotypic beliefs.

The abundance of studies which have addressed age-stereotypes of memory per se (Ryan, 1992; Ryan & See, 1993; Williams, et al., 1983), or considered memory changes among an array of age-stereotypes (Baltes, et al., 1989; Heckhausen & Baltes, 1991; McFarland, et al., 1992), indicates that such stereotypes are real and stable phenomena. To some degree, the findings reported here suggest that such stereotypes may explain at least part of the nonveridicality of memory self-report in other studies. Memory self-report measures clearly show some degree of overlap with actual performance, particularly when the self-report and performance measures address a similar, and familiar domain (Berry, West, & Dennehey, 1989). However, in Studv 2 the same self-report measures also show overlap with domains not directly related to individuals' own performance, and not directly related to their affective state (e.g., age-stereotypes of memory). What remains to be determined is the proportion of unique variance in self-report contributed by objective observation of own actual performance (as indexed by valid measures of everyday performance, and diary-type reports; Cavanaugh, et al., 1983; Morris, 1984), versus putative social-schema influences.

Do implicit theories alter what individuals may notice about their memory?

One of the notions raised in the dissertation is that individuals' implicit theories of their memory not only have some degree of influence when they retrospect about their memory, or when asked to complete questionnaires, but may also have some bearing on what ends up getting stored about their everyday memory performance in the first place. The association between perceived diagnosticity of hypothetical instances of forgetting and self-reported forgetting in Study 2 supports this view to some degree. Clearly it is not possible to determine, on the basis of a mail-in questionnaire, whether individuals with higher diagnosticity scores have more salient examples of their own forgetting consciously available to them at the time of completing the EMQ, however the association between typicality and diagnosticity scores indicates that they at least believe themselves to be highly likely to commit such memory slips. More compelling support

would be provided by the observation of a relationship between voluntary spontaneous recollection of forgetting instances and diagnosticity ratings. As was noted earlier, it is also conceivable that individuals who actually *are* more forgetful are more inclined to treat whatever slips they notice as more evidenciary. However, even were it the case, it ceases to be pertinent once individuals become more schematized (Markus, 1977) about their own forgetfulness. That is, there may be some basis in reality, but once a self-schema of forgetfulness is constructed, instances of everyday forgetting will still likely receive more extensive processing, and be more recallable.

But are they *really* implicit theories?

The assertion that the measures used in Studies 1 and 2 address adults' implicit theories of their own memory depends on external validation via the anticipated sequelae of such implicit theories, within the framework outlined by Dweck and Leggett (1988). These would include negative affect generated by failure, avoidance of tasks in which some degree of failure is a distinct likelihood, and influences of failure on self esteem. Study 2 indicates that people who adhere to something like an entity theory of their own performance tend to be less happy with their performance, however the direction of causation between measures of affect, measures of implicit theory, and the memory satisfaction measure is largely untestable on the basis of Study 2's design. In this respect, although Study 2 provides data which are consistent with the existence of an entity theory in those with poorer memory self-report, this view is not compelled.

Discrepancies in Everyday Memory Functioning, and Memory Satisfaction

One of the focal points of the dissertation is degree of memory satisfaction as one of the implied outcomes of individuals' implicit theories. Although MSS scores are correlated with other pertinent variables in a different manner than overall life satisfaction scores, to what extent should MSS scores be construed as necessarily reflecting *satisfaction* with memory, as opposed to some other memory-perception or memory self-efficacy (Hertzog, et al., 1990) construct? Closer inspection of item content suggests that MSS items are somewhat unique in their explicit reference to personal standards of memory adequacy, in comparison to items from the MIA and other

published scales (Gilewski & Zelinski, 1986). Scale items (e.g., "All in all, I'd say I was pretty happy with how well I remember.") are also similar in phrasing to some of those in the Life Satisfaction Index (e.g., "As I look back on my life, I am fairly well satisfied.").

Additional support for the view that MSS scores tap satisfaction with memory is provided by the observation that MSS scores are predicted in a manner analogous to other types of satisfaction measures. Michalos (1985) has advanced a general model of satisfaction, termed "multiple discrepancies theory", in which current satisfaction on some dimension is predicted by (among other things) the discrepancies between what one has (or is) now and: what one expects and wants in the reasonable future, what one has experienced in recent years, and what one sees as the best previous point. According to the model, those who note a decline in the dimension under consideration, from some previous high point to a current low, and who expect further decline in an undesirable direction, are among the most likely to show dissatisfaction with that dimension. Translating to the memory context, Michalos' model would predict that individuals who see themselves as having previously been better rememberers, see themselves as currently very poor rememberers, expect to be even poorer rememberers in the near and continuing future, and see competent remembering as something desirable, ought to be least satisfied with their current memory functioning. This is generally consistent with the results of Study 2. As well, variations in any of the elements of Michalos' model may alter expressed satisfaction. The individual who perceives their memory to be poorer than it once was, but still remediable, is expected to express a higher degree of satisfaction than the individual who sees little or no possibility for improvement. Likewise, the individual who sees current functioning as poor and unlikely to improve, but little changed from previous best levels (typified by respondents who cheerfully remark "I've never been that good at remembering names/numbers/faces"), is likely to be more satisfied than the individual who perceives decline. Again, both retrospective and prospective components appear to be involved. The pattern of simple correlations

observed is generally consistent with this. Perceptions of past, present, and future memory performance all predicted memory satisfaction scores.

Overall, then, the variables included in the regression analyses address many, if not all, of the elements embodied in Michalos' model. To the extent that stereotypes of memory and general decline in the populace appear to influence self-perceived change, they were entered before self-rated change. Diagnosticity and MIA-Locus ratings were entered prior to self-rated change and current functioning variables, to estimate how much variance in memory satisfaction was predicted by more descriptive measures (MIA-Change-self, MIA-Capacity, etc.), over and above the way that memory is interpreted.

The outcome of the first regression equation is relatively consistent with Michalos' model. Poor expectations for the future, and discrepancies with the recent and remote past, all predicted significant amounts of variance in memory satisfaction, with self-rated current level of functioning not significantly adding to variance accounted for, when the actual discrepancies were entered first. Although self-report measures of current functioning were all significantly correlated with memory satisfaction on an individual basis, the regression suggests that the role they may serve is largely as a reference point, rather than exclusive basis for assessing satisfaction.

In the second hierarchical regression, when comparisons to prior levels of functioning were entered before current measures, but in the absence of prospective measures, current self-report measures did predict a significant increment to variance accounted for, although considerably less than they did on their own. Although the analysis does not compel the view, it is nevertheless consistent with the view that expressed satisfaction with memory is mediated in a manner like other types of satisfaction judgments, and the view that ratings of current memory functioning may be less pertinent to individuals' feeling about their memory than judgments based on longitudinal comparisons, and expectations about the future.

Personal Importance of Remembering and Memory Satisfaction

Michalos (1985) proposes that the values of the individual are also pertinent to level of satisfaction. Individuals who attach little importance to the dimension under

consideration are not expected to express any great dissatisfaction with it. In Study 2, the personal importance of remembering was indexed by the MIA-Achievement scale. Overall, subjects obtained mean scores in the middle of their range for both the MIA-Achievement scale, and the memory satisfaction scale. This is roughly consistent with what Michalos might predict; moderately important things tend not to result in extreme satisfaction or dissatisfaction. Inconsistent with his model, however, was the finding that mean MIA-Achievement scores were uncorrelated with memory satisfaction.

There are a number of possible reasons why MIA-Achievement scores did not predict memory satisfaction. First, MIA-Achievement scores were unrelated to any other memory self-report variables (see Table 13). MIA-Achievement scale scores have rarely been associated with either subject age (Hultsch, et al., 1988), adult cognitive performance (Cavanaugh & Poon, 1989; Hertzog, et al., 1990b), or other memory self-report measures (Cavanaugh & Poon, 1989; Hertzog, et al., 1989). Consequently, MIA-Achievement scores may simply be an inappropriate measure for addressing personal importance of effective remembering. (Although MIA-Achieve scores were significantly related to *all* measures of general and memory-specific age-stereotypes in Study 2; individuals more motivated to remember also demonstrated more negative age-stereotypes.)

Closer inspection of the content of the individual MIA-Achievement items (see Appendix I) indicates that they revolve around roughly three basic themes: how much pride individuals feel when remembering effectively, how important they feel it is to remember and put effort into remembering, and how bothered they are when they fail to remember effectively. Of these three types of items, only items from the latter category showed any reliable relationship with memory satisfaction scores. In particular, ratings for each of two items ("It bothers me when others notice my memory failures", "It doesn't bother me when my memory fails") were significantly related to memory satisfaction scores ($\underline{r}$=-.441, and -.592, respectively; $\underline{p}<.001$ in each case). Only one item out of the remaining fourteen ("I'm highly motivated to remember new things I learn") was related to memory satisfaction scores ($\underline{r}$=.244, $\underline{p}$=.025). Overall MIA-

Achievement scores may be unrelated to MSS scores because the scale confounds different sources of motivation: the desire to have success in remembering, and the desire to avoid failure. As might be anticipated, only those items reflecting reactions to failure were strongly associated with memory satisfaction. Conceivably, the confounding of motivational dimensions may underlie the failure of MIA-Achievement scores to correlate with any of the other MIA scale scores in this study and others (e.g., Hertzog, et al., 1989).

Do Younger and Older Adults Acquire Knowledge About Their Memory in a Different Manner?

This particular question was raised at the outset of the dissertation, and although it forms part of the core of the position advanced in the dissertation, there is no direct evidence from either Study 1 or 2 that young and old adults use qualitatively different information in constructing impressions of their memory. Having said that, however, several aspects of the results are consistent with the view that young and old may bring different content to bear when arriving at impressions of their memory.

Study 1 indicated that young and old adults' estimates of their everyday forgetting are related to their beliefs about what is typical for their cohort. This in itself is not conspicuous. However, young adults may employ social-schemas about their peers' memory without reference to any longitudinal processes of decline, whereas older adults' assumptions about their relevant social comparison group may implicitly include information about such expected change; i.e., How good is your memory for names? Probably not as good as it was once. MIA-Capacity scores were not correlated with individuals' memory-stereotype measures, however they were correlated with adults' perception of how forgetful they are, and these estimates were, in turn, correlated with memory-stereotypes.

Study 1 indicated that older adults may have a somewhat more inflated idea about the degree of normative longitudinal change, resulting primarily from assumptions about youth, rather than old age. Study 2 indicated that older adults' impressions of their memory stability is related to those beliefs about longitudinal change. It remains to be

seen, however, whether younger adults' notions of change or stability in themselves are also related to their expressed age-stereotypes of memory, for proposed, spurious, or other reasons. The strongest case for the view offered in the dissertation (i.e., that temporal comparisons for self are distorted by social-schemas) would be provided by the observation of similar age-stereotypes for memory offered by young and old adults, but an integration of stereotypes and self-schemas of decline which is unique to older adults.

Study 1 suggested that memory satisfaction may be based on perceptions of extent of forgetfulness moreso for young adults than for older ones, however the second sample of older adults demonstrated a correlation between MSS and EMQ scores even more robust than that of Study 1 young adults. In view of the inconsistency of the EMQ/MSS correlation, the relative importance of frequency of forgetting for young and old remains an empirical question.

The Role of Retrospection

As was noted earlier, measures of self-rated decline tend to be predicted most consistently by subject-age across studies, and most robustly by subject-age, in a number of studies (Hultsch, et al., 1988). The combined findings of Studies 1 and 2, in addition to other reports (McFarland, et al., 1992), suggests that one of the key mediators of such memory self-report, appears to be the manner in which schematic processes may influence retrospective self-assessment.

It is not surprising that this may be the case. Memory stereotypes across studies (Baltes, et al., 1989; Heckhausen & Baltes, 1991; McFarland, et al., 1992; Ryan, 1992) indicate that the anchor for what constitutes peak performance is youth. In the case of older adults, information about such performance in themselves or their peers is considerably more remote than it is for younger adults, hence more likely to be schema-driven, and biased in the direction of the schema (Ross, 1989). In a sense, significant age-differences in retrospective self-assessment are possibly more robust than other types of memory self-ratings, as well as more consistently significant across studies, due to their inflation by age-schemas (Devolder & Pressley, 1989). This is even more conspicuous when one considers that the MIA-Change scale only addresses change over

the past 10 years, and only two of the five items in the MFQ-Retro scale go back past the previous 10 years. The finding that adults' beliefs about what their memory was like in their mid-to-late 50's (subtracting 10 years from the group mean of 66.9) is predicted by their beliefs about the memory capabilities of people in their late 20's provides, perhaps, even stronger support for the view that self-perceptions of decline are being biased by idealized schemas.

The robust relationship between self-rated memory change, and self-rated memory satisfaction, suggests that even if self-ratings of decline are erroneous large, this error is important in other respects. Adults clearly don't like feeling that their memory has declined, and perceptions of greater decline, whether erroneous or not, may be more likely than perceptions of poor current performance, per se, to generate negative affect.

Do Negative Stereotypes Only Have Negative Effects?

Much of the dissertation attempts to demonstrate how social-schemas of aging may bias the types of schemas older individuals form about their own memory, and report in research questionnaires. The most salient aspect of this pattern is the association between negative stereotypes of age-related memory decline and negative self-report. In some respects, older adults may be penalized by stereotypes in two ways: (a) by having a distorted view of what their memory may have been like previously, and (b) by having particularly low expectations for their future memory status. However, it may also be that low expectations of older persons, held across the lifespan, can serve as a vehicle for individuals to effect dissociation from their age-mates, and maintain a more positive global self-evaluation of their memory. Erber, Szuchman, and Rothberg (1992) noted that, "societal expectations of age-related memory decline may actually allow older adults to feel less discomfort when they do experience memory failure." (p.320). In the absence of pronounced stereotypes of decline, individuals may have diminished opportunity for downward comparison, and, in turn, less opportunity for self-enhancement. Frey and Ruble (1989) make a similar point, noting that individuals' subjective sense of competence may be more readily maintained by social comparison against others when performance starts to decline from perceived previous levels. In the

current context, notions about relevant others may be schema-driven in addition to empirically-derived.

The critical element in determining the implications for other aspects of memory self-perception would be the degree to which a self-enhancement strategy is implemented in tandem with stereotypes, rather than the existence of stereotypes alone. As indicated in the regresson analysis of MIA-Change-Self scores, individuals who express age-stereotypes, but tend not to map those stereotypes (and accompanying apprehensions) onto themselves, may still perceive their own memory as somewhat more longitudinally stable. Perceptions of stability, in turn, appear to have implications for whether or not adults are content with their everyday memory functioning.

The current data suggest that adherence to age-stereotypes offers possibilities for both negative and positive self-assessment, depending on how such stereotypes are integrated with other notions of self. Another perspective on this is provided by Brubaker and Powers (1976), who suggest that a positive or negative outcome of perceiving one's self as "old" depends on the specific reference group one employs. Those who witness objective indicators of aging in other elderly that are intrinsically negative, will derive a negative self-concept if they perceive themselves as old, whereas those who note relatively positive objective indicators in other elderly will feel positive about feeling old. Translated to the memory context, those who feel that old people are highly forgetful, and also *feel* old (i.e., identify with the "old" end of such stereotypes) will perceive their memory in negative terms. Such a feeling of "oldness" would occur in response to perceiving both low current status, and age-related decline. In contrast, those lacking such a view (or perhaps such a pronounced view) of aging and memory in others would not be expected to react negatively by perceiving themselves as being like other elderly. Brubaker and Powers suggest that such objective indicators may depend upon one's personal experience with elderly, however it is unclear at what point in development such experience is still capable of modifying stereotypic perceptions. The data of Study 1, and those of Ryan (1992) suggest that stereotypic beliefs about

memory in later life are not altered appreciably by being older and (consequently) having more experience (and more varied experience) with older adults.

Do Beliefs Influence Attributions?

One mechanism for implicit theories of aging and memory to influence self-esteem and memory-related affect is via the attributions that individuals make for their own forgetting at the time it occurs. Do stronger beliefs in age-related decline result in different attributions for memory performance? The third study, alluded to earlier, provides some preliminary evidence that they do. Younger and older subjects indicated, on a 7-point scale, how much of a role they felt each of six different factors (one's ability, one's age, one's mental state, effort expended, task difficulty, luck) play in their own everyday forgetting. Individuals with more pronounced age-stereotype scores on the MRQ-typicality items, were also more likely to attribute their own forgetting to their age ($r=.442$, $p<.001$). In turn, attributions of everyday forgetting to age were predictive of MSS scores ($r=-.345$, $p=.001$). Indeed, of the six possible attributions that individuals could make, only those which were internal and stable (Weiner, 1985) - age and ability (which was predicted by beliefs about the diagnosticity of one's own memory behaviour) - were significantly related to expressed satisfaction with memory. These preliminary results suggest that one of the mechanisms by which age-schemas might influence self-schemas (and consequent affect or negative self-concept) is via the way in which individuals explain their behaviour to themselves.

Clinical Applications of the Current Findings

Many of the metamemory instruments and studies examining dimensions of memory self-report have been directed at developing tools for preliminary clinical screening of potential dementia (Gilewski & Zelinksi, 1986; Crook & Larrabee, 1990). To the extent that dementia is an insidious and ongoing process, perceptions of decline by older adults are, no doubt, of clinical relevance, and are included in many of the instruments investigated (Gilewski & Zelinski, 1986) for that very reason. The current data suggest that such instruments might best be used clinically when variance stemming from age-stereotypes and implicit theories is statistically controlled. That is, the patient

for whom self-report measures might be most diagnostically informative for the clinician, is the one for whom perceptions of decline and poor functioning are far more negative than one might predict on the basis of stereotypic influences, or depression (Gilewski & Zelinski, 1986). Conversely, clinical instruments for screening clinical memory deficits in later adulthood may tend to be most valid when they minimize the role of social comparisons in memory self-report. The emphasis here is on "minimize", since it may ultimately be largely impossible to eliminate all forms of social comparison, and all social-schemas, in such evaluative processes. In a way, any source of variance besides actual performance and affect, also allows one to establish divergent validity of clinical measures. Nevertheless, several studies have observed a reasonably good correspondance between memory self-report and objective performance measures, using instruments that tend not to show robust negative age differences in self-report (Larrabee, West, & Crook, 1991; Niederehe & Yoder, 1989; Sunderland, et al., 1986).

A related implication is that, whereas little qualitative distinction has traditionally been made between memory self-report methods designed for purposes of developmental investigation, and those designed for clinical investigation (Gilewski & Zelinski, 1986), these may ultimately end up as separate categories of instruments, as well as endeavours.

Conclusions

The notion that adults might construct evaluations of themselves or dimensions of their lives using different types and weightings of information is not new with respect to dimensions of personality or other non-cognitive dimensions of self (e.g., life satisfaction). Fitzgerald (1981) raised these identical questions more than a decade ago, and suggested the person-perception paradigm as a useful method for examining the types of information employed by adults of different ages. Nor is the notion that expectations about lifespan changes may colour self-knowledge in adulthood novel. Fitzgerald also cites Thomae (1970) as emphasizing that perceptions of change go hand in hand with expectations and beliefs. If anything, it is surprising that such assumptions from social-cognition and lifespan perspectives, and the study of cognitive self-conceptions in

adulthood, have remained somewhat isolated from each other in the empirical literature for so long.

The findings of the two studies presented here cannot be construed as compelling evidence of age-dependent changes in the processes underlying memory self-evaluation in the absence of either longitudinal data or concurrent memory measures. Moreover, to the extent that self-description of changes in intellectual functioning may also be driven by actual decline (Cornelius & Caspi, 1986; Grover & Hertzog, 1991; Schaie, Wilis, & O'Hanlon, 1994), strong inferences about the causal role of stereotype-beliefs would require concurrent examination of factors known to alter the extent of age-stereotypes, using designs which provide more stringent evaluation of the extent or magnitude of stereotypes (Kite & Johnson, 1988; Kogan, 1979). The most compelling support for the implicit theory approach advanced here would be one in which variation in individuals' over or underestimation of actual change in memory functioning, can be predicted by the stereotypes held, and such additional predicted variance would be attentuated when known exogenous influences on stereotypes are statistically controlled.

A major part of our understanding of self-evaluation processes ultimately lies in determining who evaluates themselves accurately and who doesn't. As Mook (1989) has indicated, though, the process of arriving at ecologically valid measures of everyday memory that map onto the sorts of personal constructs (Dobbs & Rule, 1987) addressed in metamemory questionnaires (which, in themselves, haven't been fully explored), is a methodologically difficult one, although some researchers have met with a degree of success (e.g., Berry, West, & Dennehy, 1989; Crook & Larrabee, 1990). The merits of concurrent assessment of social-schemas and self-schemas about memory have been reasonably established in the dissertation, but the degree to which memory self-schemas are driven by one's own behavioural data, relative to socially-acquired data, remains open to question. Ultimately, such questions can only be resolved by simultaneous examination of social-schemas, exogenous influences on social-schemas, memory self-schemas, and relevant memory measures. The two studies presented here combine only

two of those components, and are limited in that respect. Within those limitations, however, several tentative conclusions can be offered here:

1) *Older adults are, like most, moderately satisfied with their memory, and, as a group, may not be that much more dissatisfied with their memory than younger adults.* To the extent that the implications of any memory difficulties for personal health may warrant more concern by older individuals, one might anticipate greater worry amongst those older adults who *are* dissatisfied with their memory. However, in contrast to anecdotal evidence (Hulicka, 1982; Kahn, et al., 1975, Zarit, et al., 1981) the older samples examined in the dissertation seem to be reasonably content with their memory functioning, even though they may often report decreased levels of memory functioning, relative to younger persons (Hultsch, et al., 1988).

2) *Dissatisfaction with one's own memory likely arises from processes analogous to other satisfaction-like judgments.* Data from the second study indicate that individuals' relative contentment with their memory, like judgments of life satisfaction (Michalos, 1985), is related to both retrospective and prospective information components. Individuals who see their current memory functioning as worse than it once was, and unlikely to improve in the future, will generally express less overall satisfaction with it. Much like life satisfaction judgments, memory satisfaction is likely also mediated by the individual's affective status.

3) *The prospective and retrospective information incorporated in memory-satisfaction judgments is likely subject to social influence and distortion.* Short of a revolution in clinical testing and diagnostics, it is clearly impossible for adults to know what their memory functioning will be like in the future other than by extrapolating from age-stereotypes, and establishing some degree of similarity/dissimilarity between themselves and the stereotyped age in question. Hence prospective information about one's memory is inherently a schema-driven estimate, and subject to all the pertinent schema-based distortions.

Study 1 indicates that older individuals appear to endorse somewhat broader stereotypes of age and memory. Study 2 indicates that those older individuals who more

strongly endorse such stereotypes, and more general stereotypes about aging, describe themselves as having shown more memory decline until the present.

4) *The actual behavioural data that adults log about their current memory functioning, may be less important in some cases, than the individual's perception of change in their memory.* To the extent that current status serves as a baseline for estimating own previous status (Ross & Conway, 1986), variations in individuals' perceptions of their current memory are clearly relevant to other types of memory self-report. However, for the investigator, or clinician, who may wish to examine performance correlates of presenting memory complaints, or other global self-conceptions similar to memory satisfaction, the current data suggest that perceived dynamic changes may be far more important in determining complaint or concern over memory than current status. The individual whose actual memory functioning is better than average, but perceives themselves as having *been* better, may register more complaint than the individual who performs poorly, but perceives little change in recent years.

In some respects, the view presented here is also consistent with Viney's (1992) suggestion that individuals may evaluate themselves within the context of an emerging self-narrative to which new personal constructs are added over the lifespan. In this particular instance, discomfort with memory may emerge in response to the sense of self as having "become old".

5) *Individual's attention to, and perception of, their own everyday memory lapses may be mediated by their beliefs about the meaning of everyday memory behaviours.* There are undoubtedly many sources of error when individuals attempt to retrospectively evaluate the frequency of occurrence of something either long ago, or over a large interval (Bradburn, et al., 1987). Study 2 suggests that one such source of error in estimation of one's own behaviour may arise out of the on-line attributions individuals make when "cataloging" their behaviour: chiefly the notion that such behaviour reflects upon a trait in themselves. In some respects, older individuals who are more concerned about their memory may well be able to easily retrieve instances which serve as behavioural "evidence", while those who are less schematized about being an older

"forgetful" person, may retrieve such instances less readily because of how they are encoded at the time (Cavanaugh, et al., 1993). The present data do little to compel this view, but do suggest some research possibilities, in tandem with implicit theory approaches. This view is also consistent with other social cognitive approaches to encoding information about the self (Markus, 1977).

6) *Adult metamemory, memory beliefs, and memory self-report may be better understood by employing a social-cognitive approach.* To the extent that what adults have to tell us about their memory is worth studying, in and of itself, (Hertzog, et al., 1990), the current data suggest that observation of own performance may not be the only information that adults employ in formulating the kind of assumptions about themselves that are revealed in questionnaires, in structured interviews, or in casual conversation at parties. Self-report of functioning may best be conceptualized as resulting from individuals' attributional schemes, that are, in turn, influenced by their beliefs about what constitutes a plausible attribution for people like themselves. These beliefs are, in turn, altered by their naive assumptions about base-rate information in the relevant social comparison groups.

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Appendix A

PERSONAL DATA BOOKLET

People with different life circumstances very often acquire different kinds of attitudes or beliefs. The following questions and basic information about persons is intended to help us figure out what kinds of factors (if any) might predispose someone to think this way or that about their own memory. Please answer as completely and as accurately as possible. Where accuracy is difficult to provide, please indicate that your answer is a "guess" or rough estimate. **DO NOT** put your name on this.

Year of Birth _____ Male __ Female __

Currently I would describe myself as .....

a: ( ) Primarily employed outside the home. (Briefly describe your job title)

_____

b: ( ) Looking for work, but normally I would be employed as

_____

c: ( ) Primarily employed in the home. I take care of:

_____

_____

Prior to working in the home, I was employed primarily as

_____

_____

d: ( ) Primarily a student (**more** than a few casual courses for enjoyment). My current programme of studies is:

_____

e: ( ) Primarily retired. Prior to my retirement from full-time employment, my work career was typified by employment as

_____

I consider myself as having retired from full-time employment in 19____

Appendix A (cont.)

In general, I find my retirement/semi-retirement to be (check one):

a: ( ) active, exciting, everything I'd hoped for, and more.
b: ( ) enjoyable overall, prefer it to working.
c: ( ) okay, it could use a bit of perking up now and then,
d; ( ) somewhat disappointing or frustrating.
e: ( ) quite a disappointment, I'd "unretire" if I could.
f: ( ) other

My highest level of education reached could **best** be described as:

Grade School _____ (highest level reached)

Secondary/High school _____ (highest level reached)

University _____ (highest level reached)

Vocational, trade, commercial, or technical school _____ (highest level reached)

Adding it up, with stops and starts, I would say that I have had about _____ **complete** years of formal education since starting school as a child.

The last year I attended school or training half-time or more was in 19_____.

As far as **I'm** concerned, I would say that my current employment, retirement, homemaking, or study activities (check one):
a: ( ) require very little or no remembering; monotonous.
b: ( ) require remembering occasionally; not really a strain.
c: ( ) create infrequent "bursts" of memory demanding activity.
d: ( ) require a fair amount of remembering on a daily basis.
e: ( ) constantly demand a great deal of remembering.

Appendix A (cont.)

During the past **two** years, I would say that my life has been (check one):
a: ( ) Quite stable, no major upsets or surprises.
b: ( ) Generally stable, a few changes.
c: ( ) Not too stable, enough changes to keep it "interesting".
d: ( ) Less stable and more changes than I would have liked.
e: ( ) A **very** bumpy road, **many** major changes.

Overall, I would say that my life is/has been (check one):
a: ( ) Quite stable, no major upsets or surprises.
b: ( ) Generally stable, a few changes.
c: ( ) Not too stable, enough changes to keep it "interesting".
d: ( ) Less stable and more changes than I would have liked.
e: ( ) A **very** bumpy road, **many** major changes.

Compared to a "perfect" state of health, I believe my overall health to be (please circle one):

Very Good	**Good**	**Fair**	**Poor**	**Very Poor**
(1)	(2)	(3)	(4)	(5)

Compared to other people my age, I believe my overall health to be: (please circle one):

Very Good	**Good**	**Fair**	**Poor**	**Very Poor**
(1)	(2)	(3)	(4)	(5)

Are you currently experiencing any threat to your health which you feel disturbs your work, studies, social life, recreational activities, or personal affairs? (check one)

a: ( ) Yes, a major source of disruption.
b: ( ) Yes, but it doesn't disrupt my life completely.
c: ( ) No.

Do you know of any friend, living or deceased family member who has suffered from a progressive dementing (i.e., mentally incapacitating) disease in mid or later life such as Alzheimer's disease, Pick's disease, etc.? If so, how many?

Blood relation _____ Non-blood relation _____

Close friend _____ Acquaintance _____

Appendix A (cont.)

For each of the next six questions, circle the letter that best describes your feelings.

1. In general, I am unsatisfied with my memory ability.

Agree strongly	Agree	Undecided	Disagree	Disagree strongly
(a)	**(b)**	(c)	(d)	**(e)**

2. In general, I remember things about as well as I need to.

Agree strongly	Agree	Undecided	Disagree	Disagree strongly
(a)	**(b)**	**(c)**	**(d)**	**(e)**

3. My memory ability isn't as good as I would like it to be.

Agree strongly	Agree	Undecided	Disagree	Disagree strongly
(a)	**(b)**	(c)	**(d)**	**(e)**

4. I have no real major complaints about my memory.

Agree strongly	Agree	Undecided	Disagree	Disagree strongly
(a)	**(b)**	**(c)**	**(d)**	**(e)**

5. Compared to what I expected at this age, my memory is about as good as it ought to be.

Agree strongly	Agree	Undecided	Disagree	Disagree strongly
(a)	**(b)**	(c)	**(d)**	**(e)**

6. All in all, I'd say I was pretty happy with how well I remember.

Agree strongly	Agree	Undecided	Disagree	Disagree strongly
(a)	**(b)**	**(c)**	**(d)**	**(e)**

Appendix A (cont.)

Looking at your present situation, during **the past month** have you ever felt? (check one answer for each):

particularly interested in something	___ Yes ___ No
so restless you couldn't sit long in a chair....	___ Yes ___ No
proud because someone complimented.... you on something you had done	___ Yes ___ No
very lonely or remote from other people	___ Yes ___ No
pleased about having accomplished .... something	___ Yes ___ No
bored	___ Yes ___ No
on top of the world	___ Yes ___ No
depressed or very unhappy	___ Yes ___ No
that things were going your way	___ Yes ___ No
upset because someone criticized you	___ Yes ___ No

Taking all things together would you say you are (check one):

a)___ not too happy b)___ pretty happy c)___ very happy

Appendix B

* * * MEMORY RATING QUESTIONNAIRE * * *

The following questionnaire examines your attitudes towards memory performance and abilities of different aged persons. In this questionnaire, you will be presented with brief one-sentence descriptions of someone who is showing either forgetfulness or remembering in everyday life. Following each brief description, you will be asked to evaluate it in several ways.

In the **FIRST** part of the booklet, you will be asked to rate how **likely** you think people of different ages might be to commit such a memory slip or to remember this well. That is, how common an occurrence do you think this kind of behaviour is? You will be asked to answer this question **twice**: once, taking into consideration that the person being depicted is a typical or average **25-30** year-old, and once, taking into consideration that the person being depicted is a typical or average **65-70** year-old.

Each question has a 5-point scale beside it. To indicate your answer, simply circle the number on the scale which **best represents** your opinion. (If you decide to change your answer, cross out the first one.)

For example: **Ben often forgot to set his alarm clock for work Monday morning.**

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :	**not at all likely**		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

If you felt this kind of behaviour is a common occurance in people of a given age, you would circle a higher number. If you felt it was **un**common, you would circle a lower number. You may circle different numbers for each of the ratings if you feel different people typically perform differently, or identical numbers if you feel they forget or remember in a similar manner.

In the **SECOND** half of the questionnaire, you will again be asked to provide ratings for the average younger and older person. However, in this case, we would like you to rate how much you think the kind of forgetting or remembering depicted is an **indicator** of a person's general memory ability. That is, how much could you tell about their usual everyday remembering from seeing them do this? (Assuming the person behaved that way relatively often, or as often as is described).

So, if you felt that a particular form and degree of forgetting was somehow an exception to the rule and **not** any indication of general memory ability, you would circle a lower number. If you felt that some form of forgetting or remembering was a **strong** indication of a more general memory ability (or problem) for that person, you would circle a higher number.

Appendix B (cont.)

Please try to answer as honestly and accurately as you can. Try to think in terms of the average younger or older person, rather than a few select people you might know. If you wish to give identical answers for both age ranges, that is fine. If you wish to indicate different expectations for different aged persons depending on the situation, that is also fine. **We are interested in what YOU think.**

Thank you

* * * * * * * * **PART A** * * * * * * * *

Please rate these situations in terms of how likely or common you think such remembering or forgetting is for a particular age group.

1. Every now and then, Paul would find himself rummaging around the kitchen having forgotten what it was he was looking for.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

2. Sue could name every one of the many books she read last year.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

3. After 5 years in the same neighbourhood, Claire constantly found herself ending up on the wrong block in front of the wrong house.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

4. Neil always had to go back to the grocery store for the one item he forgot.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

Appendix B (cont.)

5. George couldn't recall where he had put his keys only a few seconds earlier.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

6. When Jerry ran into his sister-in-law at the mall, it took him a minute before he could place her face and recognize her.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

7. Vera could remember the words to all her favourite popular songs.
Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

8. Sally found it awkward trying to remember people's names at parties, particularly when she had to introduce two people she had only known for a few days.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

9. Herb often had to recheck the postal code once he'd started addressing a letter.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

Appendix B (cont.)

10. Despite his large vocabulary, Alex sometimes found some common words at the tip of his tongue.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

11. Al could recall the phone numbers of all of his cousins.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

12. Hal would sometimes be engrossed in something else and forget that he was supposed to be at a business meeting.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

13. Bill was good at trivia games and remembering obscure facts.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

14. You could always count on Ralph to mutter "Now, what was I saying?" at least once during a conversation.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

Appendix B (cont.)

15. Mary sometimes found it difficult remembering where she had put her car in the shopping mall parking lot.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

16. When reading, Lee usually needed to mark her place when she got up to answer the phone, so she could remember where she left off.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

17. Erica was always correct about where she recalled hearing something.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

18. Without thinking, Jill stamped and sealed the envelope before putting the letter inside.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

19. Joan usually wouldn't remember birthdays or anniversaries until the day after they had occurred.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

Appendix B (cont.)

20. Sam could practically repeat the 6:00 news highlights word for word.
Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

* * * * * * * **PART B** * * * * * * *

1. Nancy always had to go back to the grocery store for the one item she forgot.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

2. Fred sometimes found it difficult remembering where he had put his car in the shopping mall parking lot.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

3. Carol often had to recheck the postal code once she'd started addressing a letter.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

4. Helen could practically repeat the 6:00 news highlights word for word.
How much do you feel this kind of forgetting would reflect on the overall memory ability of.

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

Appendix B (cont.)

5. John could remember the words to all his favourite popular songs.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

6. Sarah was good at trivia games and remembering obscure facts.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

7. When reading Dick usually needed to mark his place when he got up to answer the phone, so he could remember where he left off.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

8. Ted could tell you the name of every book he read last year.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

9. Mary couldn't recall where she had put her keys only a few seconds earlier.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**some what**	**fair amount**	**definite indicator**
the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**

Appendix B (cont.)

10. Despite her large vocabulary, Phyllis sometimes found some common words at the tip of her tongue.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

11. Alison could recall the phone numbers of all of her cousins.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

12. Greg was always correct about where he recalled hearing something.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

13. You could always count on Ann to mutter "Now, what was I saying?" at least once during a conversation.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

14. Every now and then, Diane would find herself rummaging around the kitchen having forgotten what it was she was looking for.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

Appendix B (cont.)

15. Ed found it awkward trying to remember people's names at parties, particularly when he had to introduce two people he had only known for a few days.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

16. Jack usually wouldn't remember birthdays and anniversaries until the day after they had occurred.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

17. Ellen would sometimes be engrossed in something else and forget that she was supposed to be at a business meeting.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

18. Without thinking, Phil stamped and sealed the envelope before putting the letter inside.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old?	1	2	3	4	5
the average 65-70 year old?	1	2	3	4	5

Appendix B (cont.)

19. After 5 years in the same neighbourhood, Jim constantly found himself ending up on the wrong block in front of the wrong house.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old? **1**	**2**	**3**	**4**	**5**	
the average 65-70 year old? **1**	**2**	**3**	**4**	**5**	

20. When Barbara ran into her brother-in-law at the mall, it took her a minute before she could place his face and recognize him.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	some what	fair amount	definite indicator
the average 25-30 year old? **1**	**2**	**3**	**4**	**5**	
the average 65-70 year old? **1**	**2**	**3**	**4**	**5**	

Appendix C

* * * * * * EVERYDAY MEMORY QUESTIONNAIRE * * * * * *

Using this 9-point scale, please indicate how often the following kinds of things have happened to you in the recent past.

(1) Not at all in the **last 6 months**
(2) About once in the **last 6 months**
(3) More than once in the last 6 months but **less than** once a month
(4) About **once** a month
(5) More than once a month but **less than** once a week
(6) About **once** a week
(7) More than once a week but **less than** once a day
(8) About **once** a day
(9) More than once a day

	Answer here (circle one)
1) Forgetting where you put something. Losing things around the house.	1 2 3 4 5 6 7 8 9
2) Failing to recognize places that you are told you have often been to before.	1 2 3 4 5 6 7 8 9
3) Finding a television story difficult to follow	1 2 3 4 5 6 7 8 9
4) Not remembering a change in your daily routine such as a change in the place where something is kept, or a change in the time something happens. Following your old routine by mistake.	1 2 3 4 5 6 7 8 9
5) Having to go back to check whether you have done something that you meant to do.	1 2 3 4 5 6 7 8 9
6) Forgetting when something happened, e.g., forgetting whether something happened yesterday or last week.	1 2 3 4 5 6 7 8 9
7) Completely forgetting to take things with you or leaving things behind and having to go back for them.	1 2 3 4 5 6 7 8 9
8) Forgetting that you were told something yesterday or a few days ago, and maybe having to be reminded about it.	1 2 3 4 5 6 7 8 9

Appendix C (cont.)

	Answer here (circle one)
9) Starting to read something (a book or a newspaper or magazine article) without realizing that you have already read it before.	1 2 3 4 5 6 7 8 9
10) Letting yourself ramble on to speak about unimportant or irrelevant things.	1 2 3 4 5 6 7 8 9
11) Failing to recognize, by sight, close relatives or friends that you meet frequently.	1 2 3 4 5 6 7 8 9
12) Having difficulty picking up a new skill. For example, difficulty in learning a new game or in working some new gadget after you have practised it once or twice.	1 2 3 4 5 6 7 8 9
13) Finding that a word is "on the tip of your tongue". You know wl .t it is but cannot quite find it.	1 2 3 4 5 6 7 8 9
14) Completely forgetting to do things you said you would do, and things you planned to do.	1 2 3 4 5 6 7 8 9
15) Forgetting important details of what you did or what happened to you the day before.	1 2 3 4 5 6 7 8 9
16) When talking to someone, forgetting what you have just said or maybe saying, "What was I talking about?".	1 2 3 4 5 6 7 8 9
17) When reading a newspaper or magazine, being unable to follow the thread of a story; losing track of what it is about.	1 2 3 4 5 6 7 8 9
18) Forgetting to tell somebody something important. Perhaps forgetting to pass on a message or remind someone of something.	1 2 3 4 5 6 7 8 9
19) Forgetting important details about yourself; e.g., your birthdate or where you live.	1 2 3 4 5 6 7 8 9
20) Getting the details of what someone has told you mixed up and/or confused.	1 2 3 4 5 6 7 8 9

Appendix C (cont.)

	Answer here (circle one)
21) Telling someone a story or joke that you have already told them before.	1 2 3 4 5 6 7 8 9
22) Forgetting details of things you do regularly, whether at home or at work. For example, forgetting details of what to do, or forgetting at what time to do it.	1 2 3 4 5 6 7 8 9
23) Finding that the faces of famous people, seen on TV or in photographs, look unfamiliar.	1 2 3 4 5 6 7 8 9
24) Forgetting where things are normally kept or looking for them in the wrong place.	1 2 3 4 5 6 7 8 9
25) Getting lost or turning in the wrong direction on a journey, a walk, or in a building where you have **often** been before.	1 2 3 4 5 6 7 8 9
26) Getting lost or turning in the wrong direction on a journey, a walk, or in a building where you have only been **once or twice** before.	1 2 3 4 5 6 7 8 9
27) Doing some routine thing twice by mistake. For example putting sugar in your coffee twice, or going to brush/comb your hair when when you have just done so.	1 2 3 4 5 6 7 8 9
28) Repeating to someone what you have just told them, or asking them the same question twice.	1 2 3 4 5 6 7 8 9

Appendix D

MEMORY ATTITUDE PROJECT

Introduction

"How's your memory?" There are few questions that will provoke as much discussion and as many humourous anecdotes. Virtually everyone has an opinion about their own memory. Just ask a husband and wife to compare notes and you'll find that people may often have **very** different opinions about just how good a particular individual's memory is! Whether accurate or not, people are usually fairly sure about how good or adequate they feel their own memory is and it is these beliefs that are the focus of this study.

In recent years, psychologists studying memory have observed that remembering is often related to a person's beliefs about the characteristics or extent of their memory. For example, suppose a person was asked about some fact from several years ago. The time and effort spent trying to recall it would correspond somewhat to the degree which they believed they would **ever** be able to recall it. Persons who feel their memory is adequate or good would probably spend more time and effort searching for that fact than someone who believes they have a poor memory.

This kind of observation raises some interesting questions about changes in memory over one's life. Many older adults are sensitive or concerned about declining memory ability. To what extent might their concerns about declining ability actually be a contributing factor in any decline that appears to occur? Could otherwise healthy older adults "give up" because of what they believe about declining memory in later life? Might someone think they are "going downhill" because they think that memory decline is inevitable? Could memory in later life possibly be improved by altering stereotypes about the elderly?

The Study

This project examines the possible role that some kinds of social stereotypes about growing older might play in how people of different ages think about themselves. We are primarily interested in the relationships between people's expectations about growing older and how they go about forming impressions and keeping track of their own memory ability.

Although this study cannot, by itself, answer any one of the questions raised above, we hope it may provide information that will assist in answering parts of them. We are asking you to help us with this project by completing the enclosed questionnaires and mailing them back to us in the self-addressed stamped envelope at your earliest convenience.

Appendix D (cont.)

Please note that you are **NOT** obligated to complete these questionnaires merely by having taken them home to look over. If you decide not to complete them because they don't interest you any more, or require too much of your time, we understand. Simply discard them.

As well, please understand that this is **NOT** a test to see if you will become senile, and provides no evaluation of your memory ability. These questionnaires have **no** diagnostic or clinical value. Although we hope to examine the relationship between beliefs and actual memory in future studies, for now, our concern is with how public and personal attitudes about growing older might influence healthy adults' attitudes about themselves.

General Instructions

If you **do** decide to participate, we ask your co-operation in filling out each questionnaire as conscientiously and **completely** as you can. You are free to answer only the questions that you wish, however the more information you can supply, the more meaningful your responses become to us, and the easier it is to interpret the results of the study. Please note that **all** your responses are to remain anonymous. **Do not write your name on anything in the packet.**

Each questionnaire has a set of accompanying instructions which we ask you to read thoroughly. Occasionally, you will be asked to write down information, but for the most part your task is simply to circle or check answers that reflect your feelings. Try to circle or check only **one** response per question. Although sometimes it might be hard trying to decide how best to describe the way you **really** feel, the questions in themselves are not particularly difficult or embarrassing. If you should run into any difficulty with the questionnaires, please phone me at **721-8646** or **721-8589** during working hours and I'll try and help you as best I can. There is no need to identify yourself. Just say that the call is pertaining to the **MEMORY ATTITUDE PROJECT** and that will be enough.

If your partner, friend or spouse is also participating in this project, **please keep your forms separate** and **mail them in separately**. Although you are certainly free to discuss the questionnaires with whomever you wish, try not to coach each other. We are interested in what naturally pops into your own head without prompting. Writing down an answer you arrived at after deliberation and discussion with someone else defeats the purpose of the study.

Appendix D (cont.)

In all, the questionnaires should take less than **40 minutes** to complete. If you wish to split up the work over several days, that is quite alright. However, try to complete the questionnaires **in the order indicated** and try to **complete each questionnaire at one sitting**. Both these aspects are important to the reliability and usefulness of the results. Additionally, if you decline to answer or can't answer any questions, please put a stroke through them or write "N.A." so that we know you haven't missed it accidentally.

Once again, this study is **completely anonymous.** The numbers in the corner of the booklets do not identify you personally. They are simply to match booklets in case they get mixed up in our office. Please complete all questions as conscientiously and completely as possible. If you are unsure about anything, please call us rather than fill them out incorrectly. Again, be sure to **read all instructions before beginning a booklet**.

If you have participated in one of the various related studies that have been conducted in Victoria during the last 4 years, we thank you for your continuing support. Even though some of this may seem a bit familiar, this is a brand new study and unless you have recently received an identical envelope, you have not done this study. Once the information has been collected (from an estimated 400-500 people) and analyzed, we will be pleased to pass on to you whatever we have found out. Give us a few months to work on it and then give us a call at U.Vic. (**721-8646**). Thank you kindly for your time, patience, and interest.

Yours Truly,
Mark Hammer, M.Sc.
Dept. Psychology, University of Victoria

Appendix E

Memory Rating Questionnaire

*** * * * * * * * PART A * * * * * * * ***

Please rate these situations in terms of how likely or common you think such remembering or forgetting is for a particular age group.

1. Every now and then, Paul would find himself rummaging around the kitchen having forgotten what it was he was looking for.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :	**not at all likely**		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

2. Sue could name every one of the many books she read last year.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :	**not at all likely**		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

3. After 5 years in the same neighbourhood, Claire constantly found herself ending up on the wrong block in front of the wrong house.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :	**not at all likely**		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

4. Neil always had to go back to the grocery store for the one item he forgot.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :	**not at all likely**		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

Appendix E (cont.)

5. George couldn't recall where he had put his keys only a few seconds earlier.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

6. When Jerry ran into his sister-in-law at the mall, it took him a minute before he could place her face and recognize her.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

7. Vera could remember the words to all her favourite popular songs.
Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

8. Sally found it awkward trying to remember people's names at parties, particularly when she had to introduce two people she had only known for a few days.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

9. Herb often had to recheck the postal code once he'd started addressing a letter.
Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

Appendix E (cont.)

10. Despite his large vocabulary, Alex sometimes found some common words at the tip of his tongue.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

11. Al could recall the phone numbers of all of his cousins.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

12. Hal would sometimes be engrossed in something else and forget that he was supposed to be at a business meeting.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

13. Bill was good at trivia games and remembering obscure facts.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

14. You could always count on Ralph to mutter "Now, what was I saying?" at least once during a conversation.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

Appendix E (cont.)

15. Mary sometimes found it difficult remembering where she had put her car in the shopping mall parking lot.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely				**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

16. When reading, Lee usually needed to mark her place when she got up to answer the phone, so she could remember where she left off.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely				**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

17. Erica was always correct about where she recalled hearing something.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely				**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

18. Without thinking, Jill stamped and sealed the envelope before putting the letter inside.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely				**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself*?	**1**	**2**	**3**	**4**	**5**

Appendix E (cont.)

19. Joan usually wouldn't remember birthdays or anniversaries until the day after they had occurred.

Under the same circumstances, how likely do you think it is that the same degree of forgetting would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself?*	**1**	**2**	**3**	**4**	**5**

20. Sam could practically repeat the 6:00 news highlights word for word.

Under the same circumstances, how likely do you think it is that the same degree of remembering would occur :

	not at all likely		**somewhat likely**		**highly likely**
in the average 25-30 year old?	**1**	**2**	**3**	**4**	**5**
in the average 65-70 year old?	**1**	**2**	**3**	**4**	**5**
in *yourself?*	**1**	**2**	**3**	**4**	**5**

* * * * * * * **PART B** * * * * * * *

1. Nancy always had to go back to the grocery store for the one item she forgot.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

2. Fred sometimes found it difficult remembering where he had put his car in the shopping mall parking lot.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

3. Carol often had to recheck the postal code once she'd started addressing a letter.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

Appendix E (cont.)

4. Helen could practically repeat the 6:00 news highlights word for word.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

5. John could remember the words to all his favourite popular songs.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

6. Sarah was good at trivia games and remembering obscure facts.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

7. When reading Dick usually needed to mark his place when he got up to answer the phone, so he could remember where he left off.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

8. Ted could tell you the name of every book he read last year.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

9. Mary couldn't recall where she had put her keys only a few seconds earlier.
How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

Appendix E (cont.)

10. Despite her large vocabulary, Phyllis sometimes found some common words at the tip of her tongue.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

11. Alison could recall the phone numbers of all of her cousins.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

12. Greg was always correct about where he recalled hearing something.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

13. You could always count on Ann to mutter "Now, what was I saying?" at least once during a conversation.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

14. Every now and then, Diane would find herself rummaging around the kitchen having forgotten what it was she was looking for.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

Appendix E (cont.)

15. [illegible] awkward trying to remember people's names at parties, particularly when he had to introduce two people he had only known for a few days.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	somewhat	fair amount	definite indicator
yourself?	1	2	3	4	5

16. Jack usually wouldn't remember birthdays and anniversaries until the day after they had occurred.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	somewhat	fair amount	definite indicator
yourself?	1	2	3	4	5

17. Ellen would sometimes be engrossed in something else and forget that she was supposed to be at a business meeting.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	somewhat	fair amount	definite indicator
yourself?	1	2	3	4	5

18. Without thinking, Phil stamped and sealed the envelope before putting the letter inside.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	somewhat	fair amount	definite indicator
yourself?	1	2	3	4	5

19. After 5 years in the same neighbourhood, Jim constantly found himself ending up on the wrong block in front of the wrong house.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	not much	somewhat	fair amount	definite indicator
yourself?	1	2	3	4	5

Appendix E (cont.)

20. When Barbara ran into her brother-in-law at the mall, it took her a minute before she could place his face and recognize him.

How much do you feel this kind of forgetting would reflect on the overall memory ability of:

	not at all	**not much**	**somewhat**	**fair amount**	**definite indicator**
yourself?	**1**	**2**	**3**	**4**	**5**

Appendix F

MEMORY PERCEPTIONS BOOKLET

Directions

In this questionnaire, we are interested in people's attitudes about their memory and, to some extent, remembering in general. Most of the questions revolve around how good people think their own memories are (or ought to be), whether they've noticed any change in their memory, what they feel makes a good memory, and how important remembering is to them. Since the questions are geared at understanding your **own** opinions or attitudes, there are no right, wrong, or "proper" answers to these questions. Just indicate how you feel, and not how you think someone ought to answer. It is your "feelings" and perceptions that are the real object of study.

Below, you will see a number of statements, each followed by five or more choices. **Circle the letter** corresponding to the statement which best reflects how you feel or what you believe. Please give only **one** answer per question. For instance:

I am not very good at remembering the names of my in-laws.

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

In this example you could, of course, choose any **one** of the answers. If you **agreed strongly** (regardless of why) you would circle **(a)**. If you **disagreed strongly**, you would circle **(e)**. Alternatives **(b)** and **(d)** indicate less strong agreement or disagreement. The letter **(c)** gives you a middle choice. But, don't circle **(c)** unless you really **can't** decide on any of the other responses.

In some cases, you might notice that some of the questions seem like repetitions of the same thing. Do not be concerned about this. It is not an attempt to trick you or catch you off guard. Rather, rephrasings are simply a way of being sure that, overall, your answers convey your real feelings and are not due to a misunderstanding or unintentional misreading of the questions.

Additional sections of this booklet ask you to describe the frequency with which various kinds of everyday memory slips might have happened to you in the last six months, and your perceptions about why you think you forget. For the portion which asks about **how often** you forget, you are provided with a 9-point scale, which ranges from "not at all in the last six months" up to "more than once a day". Circle the number which comes **closest** to reflecting your own behaviour, as you see it. When indicating your perceptions of why you forget, again circle a number which best indicates how responsible **each** of the factors listed is, in your estimation.

Appendix F (cont.)

Again, for each section, choose any **one** of the alternatives that comes **closest** to the way you usually feel, think or behave, even if it doesn't describe you exactly. Try to answer **every** question, even if it doesn't seem to apply to you very well. Finally, please answer as honestly as you can what is true for **you**. Please do not mark something because it seems like the "right thing to say" or because your partner or spouse made some comment.

Thank You

1. **I am good at remembering names.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

2. **It is important to me to have a good memory.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

3. **I think a good memory is something to be proud of.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

4. **In general, I am unsatisfied with my memory.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

5. **I am good at remembering birthdates.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

6. **I can remember things as well as always.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

7. **It bothers me when others notice my memory failures.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

8. **I'm less efficient at remembering things now than I used to be.**
   (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

9. **The older I get, the harder it is to remember things clearly.**
   (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

10. **I am just as good at remembering as I ever was.**
    (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

11. **It doesn't bother me when my memory fails.**
    (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

12. **I am poor at remembering trivia.**
    (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

13. **Compared to what I expected at this age, my memory is about as good as it ought to be.**
    (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

14. **I am much worse now at remembering the content of news articles and broadcasts than I was 10 years ago.**
    (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

15. **I have no trouble keeping track of my appointments.**
    (a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

16. **Having a better memory would be nice but it is not very important.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

17. **Compared to 10 years ago, I am much worse at remembering titles of books films or plays.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

18. **I have no real major complaints about my memory.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

19. **I remember my dreams much less now than 10 years ago.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

20. **I can't expect to be good at remembering postal codes at my age.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

21. **I have little control over my memory ability.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

22. **I think it is important to work at sustaining my memory abilities.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

23. **I misplace things more frequently now than when I was younger.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

24. **As people get older, they tend to forget where they put things more frequently.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

25. **I work hard at trying to improve my memory.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

26. **Compared to 10 years ago, I now forget many more appointments.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

27. **My memory for important events has improved over the last 10 years.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

28. **I admire people who have a good memory.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

29. **My friends often notice my memory ability.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

30. **My memory for names has declined greatly in the last 10 years.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

31. **I am good at remembering conversations I have had.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

32. **My memory for phone numbers will decline as I get older.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

33. **I often notice my friends' memory ability.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

34. **My memory for dates has declined greatly in the last 10 years.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

35. **I am good at remembering the order in which events occurred.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

36. **I often forget who was with me at events I have attended.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

37. **As long as I exercise my memory, it will not decline.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

38. **I am good at remembering the places I have been.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

39. **I know if I keep using my memory, I will never lose it.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

40. **It's important to me that I am accurate when remembering names of people.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

41. **It's up to me to keep my remembering abilities from deteriorating.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

42. **I have no trouble remembering where I have put things.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

43. **It's important to me that I am accurate when remembering significant dates.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

44. **Even if I work on it, my memory ability will go downhill.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

45. **I am good at remembering things like recipes.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

46. **I know of someone in my family whose memory improved significantly in old age.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

47. **It bothers me when I forget an appointment.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

48. **My memory has improved greatly in the last 10 years.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

49. **I like to remember things on my own, without relying on other people to remind me.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

50. **My memory ability isn't as good as I would like it to be.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

51. **I'm highly motivated to remember new things I learn.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

52. **In general, I remember things about as well as I need to.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

53. **I am good at remembering titles of books, films, or plays.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

54. **My memory has declined greatly in the last 10 years.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

55. **I have no trouble remembering lyrics of songs.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

56. **My memory will get better as I get older.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

57. **I am good at remembering names of musical selections.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

58. **After I have read a book, I have no difficulty remembering factual information from it.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

59. **Overall, my memory presents a real problem for me.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

60. **I am good at remembering the content of news articles and broadcasts.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

61. **No matter how hard a person works on his memory, it cannot be improved very much.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

62. **If I were to work on my memory, I could improve it.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

63. **It gives me great satisfaction to remember things I thought I had forgotten.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

64. **Remembering the plots of stories and novels is easy for me.**
(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

Appendix F (cont.)

65. **I am usually able to remember exactly where I heard or read a specific thing.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

66. **I think a good memory comes mostly from working at it.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

67. **All in all, I'd say I was pretty happy with how well I remember.**

(a) agree strongly **(b)** agree **(c)** undecided **(d)** disagree **(e)** disagree strongly

68. How do you feel your memory is **now** compared to how it was....

	much worse			same			much better
a) **one** year ago?	1	2	3	4	5	6	7
b) **five** years ago?	1	2	3	4	5	6	7
c) **ten** years ago?	1	2	3	4	5	6	7
d) **twenty** years ago?	1	2	3	4	5	6	7
e) when you were **18**?	1	2	3	4	5	6	7

Appendix G

Items from MIA-Change scale referring to perceptions of memory decline in self (MIA-Change-Self)

Questionnaire Item Number	Item
6	I can remember things as well as always.
7	I'm less efficient at remembering things now than I used to be.
9	The older I get, the harder it is to remember things clearly.
10	I am just as good at remembering as I ever was.
14	I am much worse now at remembering the contents of news articles and broadcasts than I was 10 years ago.
17	Compared to 10 years ago, I am much worse at remembering titles of books, films, or plays.
19	I remember my dreams much less now than 10 years ago.
23	I misplace things more frequently now than when I was younger.
26	Compared to 10 years ago, I now forget many more appointments.
27	My memory for important events has improved over the last 10 years.
30	My memory for names has declined greatly in the last 10 years.
34	My memory for dates has declined greatly in the last 10 years.
48	My memory has improved greatly in the last 10 years.
54	My memory has declined greatly in the last 10 years.

Items from MIA-Change scale referring to expectations of memory decline (MIA-Change-Other)

Questionnaire Item Number	Item
24	As people get older, they tend to forget where they put things more frequently.
32	My memory for phone numbers will decline as I get older.
46	I know of someone in my family whose memory improved significantly in old age.
56	My memory will get better as I get older.

Appendix H

LIFE SATISFACTION INDEX

Here are some statements about life in general that people feel differently about. Please read each statement on the list, and if you agree with it, put a check mark in the space under "AGREE". If you do not agree with a statement, put a check mark in the space under "DISAGREE". If you are not sure one way or the other, put a check mark in the space under "?". Put the answer which comes closest to your true feelings. PLEASE BE SURE TO ANSWER EVERY QUESTION ON THE LIST.

	Agree	**?**	**Disagree**
1. As I grow older, things seem better than I thought they would be.	___	___	___
2. I have gotten more of the breaks in life than most of the people I know.	___	___	___
3. This is the dreariest time of my life.	___	___	___
4. I am just as happy as when I was younger.	___	___	___
5. My life could be happier than it is now.	___	___	___
6. These are the best years of my life.	___	___	___
7. Most of the things I do are boring or monotonous.	___	___	___
8. I expect some interesting and pleasant things to happen to me in the future.	___	___	___
9. The things I do are as interesting to me as they ever were.	___	___	___
10. I feel old and somewhat tired.	___	___	___
11. I feel my age but it does not bother me.	___	___	___
12. As I look back on my life, I am fairly well satisfied.	___	___	___
13. I would not change my past life even if I could.	___	___	___

Appendix F (cont.)

	Agree	?	Disagree
14. Compared to other people my age, I've made a lot of foolish decisions in my life.	___	___	___
15. Compared to other people my age, I make a good appearance.	___	___	___
16. I have made plans for things I'll be doing a month or year from now.	___	___	___
17. When I think back over my life, I didn't get most of the important things I wanted.	___	___	___
18. Compared to other people, I get down in the dumps too often.	___	___	___
19. I've gotten pretty much what I expected out of life.	___	___	___
20. In spite of what people say, the lot of the average man is getting worse, not better.	___	___	___

AGING OPINION SURVEY

The following questions deal with people's expectations and concerns about growing older. Below you will see listed 30 statements about being older or becoming older. Beneath each item, you will see 5 choices. Indicate the extent to which the statement reflects your feelings by circling one of the choices.

There are no "right" or "wrong" answers here, so don't be too concerned about how you answer. Just indicate the response that is the best reflection of your true feelings. Try to answer as honestly as you can what is true for you, not what you think somebody else might say.

If there is an item which you feel does not pertain to you, simply cross it out to let us know you have seen it and not accidentally skipped over it.

Thank you

1. I don't think some of my friends can hear quite as well as they used to.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

Appendix H (cont.)

2. I always dreaded the day I would look in the mirror and see gray hairs.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

3. My friends are just as interested in sex as ever.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

4. The older I become, the more I worry about my health.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

5. My friends never look as good as they used to anymore.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

6. Most older people seem to need a lot of extra sleep to have enough energy for everyday chores.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

7. The older my friends get, the less interest they seem to have in interacting with others.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

8. I fear that when I'm older, all my friends will be gone.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

9. People my age can learn new things easily.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

Appendix H (cont.)

10. The older I become, the more anxious I am about the future.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

11. I see the years creeping up on my friends.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

12. It's best to forget that we're getting older every day.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

13. It's sad to say, but my friends just can't turn out the work like they used to.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

14. The older I get, the more I worry about money matters.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

15. The social status of my friends and people my age is decreasing.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

16. I have become more content with the years.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

17. More and more people I know are becoming observers rather than participants.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

Appendix H (cont.)

18. I dread the days when I can no longer get around on my own.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

19. My friends aren't nearly as changeable as when they were younger.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

20. I am sure that I will always have plenty of friends to talk to.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

21. So many people I know grow less content as the years go by.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

22. I never think about dying.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

23. People my age seem to worry unnecessarily about their health.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

24. The thought of outliving my spouse frightens me.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

25. My friends make sure they get plenty of exercise.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

Appendix H (cont.)

26. Financial dependence on my children and relatives in old age is one of my greatest fears.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

27. People I know seem to sit around the house a lot more than they used to.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

28. I know I'll enjoy sexual relations no matter how old I am.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

29. Based on the people I know, you can't teach an old dog new tricks.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

30. You can keep the joys of grandparenthood, I'd rather be young.

agree strongly	*agree*	*undecided*	*disagree*	*disagree strongly*
(a)	(b)	(c)	(d)	(e)

31. In general, I feel like I'm about _____ years old.

Appendix I

Items in MIA-Achievement Scale

Questionnaire Item Number	Item
2	It is important to me to have a good memory.
3	I think a good memory is something to be proud of.
7	It bothers me when others notice my memory failures.
11	It doesn't bother me when my memory fails.
16	Having a better memory would be nice but it is not very important.
22	I think it is important to work at sustaining my memory abilities.
25	I work hard at trying to improve my memory.
28	I admire people who have a good memory.
29	My friends often notice my memory ability.
33	I often notice my friends' memory ability.
40	It's important to me that I am accurate when remembering names of people.
41	It's up to me to keep my remembering abilities from deteriorating.
43	It's important to me that I am accurate when remembering significant dates.
47	It bothers me when I forget an appointment.
49	I like to remember things on my own, without relying on other people to remind me.
51	I'm highly motivated to remember new things I learn.
63	It gives me great satisfaction to remember things I thought had forgotten.

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Title of Dissertation: SELF-SCHEMAS AND SOCIAL-SCHEMAS FOR MEMORY IN ADULTHOOD.

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Date