

Chapter 10

Training Older Adults to Improve their Episodic Memory: Three Different Approaches to Enhancing Numeric Memory

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ABSTRACT

This chapter reviews the episodic memory difficulties typically encountered by older adults. It presents data that demonstrates that mnemonic interventions can improve episodic memory in the elderly, though such improvements often do not transfer broadly and do not result in improvements in the area of subjective memory assessment. It then presents three approaches to improving episodic memory for numeric information, each based upon a different approach. These approaches demonstrate: (a) that a mnemonic targeted at numeric information can improve number recall; (b) that self-generated strategies can improve recall at nearly the same level as a targeted mnemonic; and (c) that episodic memory can be converted into procedural memory, though this approach did not demonstrate improved episodic memory performance. Future directions for memory remediation are discussed, based upon research findings to date.

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INTRODUCTION

Memory complaints are common among older adults (Blazer, Hays, Fillenbaum, & Gold, 1997; Cutler & Grams, 1988; Verhaeghen, Geraerts, & Marcoen, 2000). In part, this is due to the fear of developing Alzheimer's disease, but it is also due to the very real fact that aging is associated with increased forgetting in everyday situations (Bäckman, Small, & Wahlin, 2001; Hultsch & Dixon, 1990; Poon, 1985; Smith, 1996). Examples of commonly reported memory difficulties include: (a) remembering names; (b) remembering where things (such as keys) were placed; (c) remembering telephone numbers that have just been looked up; (d) remembering words; (e) knowing whether you have already told someone something; and (f) remembering things people tell you. Each of these events (from the Metamemory Questionnaire [Zelinski, Gilewsky, & Thompson, 1980]) were reported as memory problems by 49% or more of a sample of adults (age range: 39 to 89, $M = 62$) in a study by Bolla, Lindgren, Bonaccorsy, and Bleecker (1991), and age was related to frequency of forgetting.

The types of forgetting outlined above are examples of episodic memory (Tulving, 1972). Episodic memory includes tasks such as free recall (remembering a grocery list), recognition (deciding which of a group of people you have previously met), and paired-associate recall (learning the foreign language equivalents for a set of words you know in your native language). Each of these tasks requires that an individual consciously decides whether particular items are part of the person's previous experience. This kind of memory can be contrasted with several other memory types including: (a) semantic memory (one's knowledge of the world, as well the meanings of words and the relationships among such meanings); (b) priming (the facilitation in performance due to previous exposure to the same item or a related item); and (c) procedural memory (knowledge of how to do something, such as riding a bicycle, that does not

require calling information into conscious awareness but involves accessing tacit or implicit steps that are part of a previously rehearsed routine. In general, these non-episodic forms of memory show much less impairment with aging than does episodic memory. For example, with regard to semantic memory, the organizational structure of the internal lexicon has been found to remain relatively stable throughout adulthood (Bäckman, Small, & Wahlin, 2001; Laver & Burke, 1993). Priming studies have shown that aging has little to no effect on the degree of facilitation due to the presentation of a prime (Bäckman, Small, & Wahlin, 2001; LaVoie & Light, 1994; Light & Albertson, 1989; Light, Singh, & Capps, 1986; Mitchell, 1989). Evidence with regard to procedural memory is mixed (Bäckman, Small, & Wahlin, 2001), with some researchers finding no deterioration with aging in the ability to reproduce routines or procedures (e.g., Schugens, Daum, Spindler, & Birbaumer, 1997) while other studies have found reduced performance with increasing age (e.g., Hashtoudi, Chrosniak, & Schwartz, 1991; Moscovitch, Winocur, McLachlan, 1986; Wright & Payne, 1985). Bäckman, Small, and Wahlin (2001) note that some of these discrepancies in research findings may due to the fact that some of the tasks used to measure procedural memory required strategies requiring episodic memory, and that when this confound exists it is difficult to disentangle deficits in procedural memory from deficits in episodic memory.

Episodic memory does appear to decline with age (e.g., Verhaeghen & Marcoen, 1993), though the degree of measured decline differs depending upon the study's methodology. Cross-sectional studies of episodic memory have indicated a steady decline that begins as early as the 20s or 30s, reaches one standard deviation below peak performance by the 60s, and continues to approximately two standard deviations by the 80s (Nilsson, et al., 1997; Schaie, 1994; Park, et al., 2002; Verhaeghen & Salthouse, 1997). The problem with cross sectional studies is that they

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