



## Will you remember to read this article later when you have time? The relationship between prospective memory and time management

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### ABSTRACT

Time management and memory processes include a variety of common concepts and goals, namely to monitor the time it takes to complete current tasks and remember later to complete intended activities. In the present study, we correlated scales that measure components of time management with those that measure prospective and retrospective memory. As expected, significant correlations indicate that people who report that they manage their time well report successful prospective and retrospective memory. Most importantly, those who engage in setting goals and priorities and have a preference for organization reported better memory than those who do not. Implications for research in time management and prospective memory are discussed.

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### 1. Introduction

Many of us strive to manage multiple projects and demands of work, school, family, and personal life, frequently feeling there is not enough time to complete all work adequately and have time for other activities. Time management has been advanced as a means to aid in deciding how to allocate time and get work done (Britton & Tesser, 1991, particularly for college achievement). Researchers, however, have questioned the extent to which time management behaviors are differentially effective for individuals and whether training benefits all (e.g., Francis-Smythe, 2006; Green & Skinner, 2005; Hall & Hursch, 1982; Macan, 1996) because evidence is mixed and inconclusive. Results suggest that time management may not be applicable for everyone and in the same way. What, then, are the individual difference variables that affect the efficacy of time management?

One line of research has focused on the dispositional nature of time management, examining roles of personality variables (Feig, 1996; Mudrack, 1999), polychronicity (Kaufman-Scarborough & Lindquist, 1999), and procrastination (Konig & Kleinmann, 2004) on time management behaviors. We extend research on individual differences related to time management by investigating the role of memory processes. Time management problems, such as remembering to perform certain tasks or underestimating time to task completion, imply a memory component to time management (Francis-Smythe, 2006). The present study empirically exam-

ines the connection between time management behaviors and memory processes.

#### 1.1. Prospective memory, retrospective memory, and time management

The study of prospective memory is receiving increasing attention from memory researchers (e.g., McDaniel & Einstein, 2007). Prospective memory refers to a collection of behaviors and mental processes concerning a formed intention to remember something later (most often a task) and remembering that intention at the appropriate time or place. Retrospective memory, or memory for past experiences, is also an important memory process. For example, remembering how you completed a past task may provide information about steps to include on one's to-do-list and help with time estimation when scheduling.

Time management is described as a “self-controlled attempt to use time in a subjectively efficient way to achieve outcomes” (Koch & Kleinmann, 2002, p. 201) which suggests there are individual differences inherent in these processes. Macan, Shahani, Dipboye, and Phillips (1990) focused on behaviors critical to the construct of efficient time management and developed a measure. Furthermore, using a time management process model, Macan (1994) empirically examined the three components of time management on increasing employees' perception of control of time and subsequent positive outcomes such as less job-induced stress, less somatic tensions, and more job satisfaction. Taken together, the constructs of prospective memory, retrospective memory, and time management are concerned with behaviors that require

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intentions to complete tasks within a given period or sequence, include valuations of the importance and necessity of tasks, allow for using external aids to help reduce cognitive load or competing demands, and require monitoring of time and its relation to task completion.

A few studies in prospective memory have investigated variables involved in employee time management, namely divided attention (Otani et al., 1997) and time-of-day effects (Leirer, Tanke, & Morrow, 1994). In addition, Francis-Smythe and Robertson (1999) report that individuals who report using time management behaviors are more accurate in estimating the duration of a future task but underestimate the passage of time while monitoring time; poor time managers consistently under- or over-estimated time of current and future tasks. More research is needed to examine directly the role of individual differences in memory regarding time management behaviors. The present study aims to fill this gap.

### 1.2. Proposed mechanisms of memory processes and time management

Francis-Smythe (2006) outlined two possible mechanisms for time management and prospective memory serving as aiding strategies. First, individuals engage in time management behaviors to free up cognitive resources for another task and lessen the burden on one's memory for prospective events. Second, individuals use time management behaviors to compensate for memory impairments. For example, Lovelace and Twohig (1990) interviewed 40 healthy elderly participants about how often they forgot an item they intended to buy or went into a room and could not remember why. They gathered anecdotal information on what participants did to prevent such cognitive failures; the majority reported writing down the intentions on a things-to-do list. Making lists is one component of time management. It is important to replicate this finding and examine how other time management factors relate to memory.

Time management may also be used to reduce the cognitive costs in managing tasks. According to Altmann's model of cognitive control in task switching (Altmann, 2007; Altmann & Gray, 2008), the cognitive costs for switching tasks when we multi-task or deal with interruptions are large but can be diminished by goal setting behaviors that keep the initial task in mind. We propose that time management goal setting behaviors help keep information active in memory when interruptions or demands occur, allowing for a shorter recovery period to get back on task. Keeping information active in memory might be particularly important when individuals have low ability to carry out the task and thus, may reduce stress in task completion.

### 1.3. The present study

Theoretical work has established a link between memory and time management, but limited empirical evidence exists. Therefore, we collected data to test our hypotheses that people with good prospective and retrospective memory would also report good time management skills, and conversely, those with more memory failures would report poorer time management skills.

Using the time management behavior components of Macan's (1994) Time Management Behaviors Scale (setting goals, mechanics, and preference for organization), we predicted that there would be a positive correlation between each and memory successes. Furthermore, we expected to see this relationship demonstrated in two other scales that measure one's perceptions of time issues. These time measures examine respondents' perceptions of time use and issues of temporal concerns. We expected those who perceived more structure and purpose in their time use and were more concerned with time would also report better

prospective and retrospective memory, further establishing empirically the relevance of these memory processes as individual difference variables in time management.

## 2. Method

### 2.1. Participants

Questionnaires were completed by 425 (62% female, 76% Caucasian) undergraduates. Participants were between the age of 19 and 59 ( $M = 26.82$ ,  $SD = 7.08$ ).

### 2.2. Materials, design, and procedure

Macan's (1994) *Time Management Behavior Scale (TMBS)*. Items measure three factors of time management behaviors: (a) goal setting/prioritizing (e.g., "I set short-term goals for what I want to accomplish in a few days or weeks"; 10 items); (b) mechanics of time management (e.g., "I make a list of things to do each day and check off each task as it is accomplished"; 11 items); and (c) preference for organization (e.g., "At the end of the workday, I leave a clear, well-organized work space"; 8 items). The three factors assess the extent to which time management behaviors are used, not the individual's evaluation of the effectiveness or appropriateness of such behaviors. A 5-item scale was also included that assessed participants' perceived control of time (e.g., "I feel in control of my time"). Using a 5-point Likert-type scale from (1) seldom true to (5) very often true, higher means indicated more frequent use of time management as prescribed by the literature. Factor composite totals were computed as originally specified and subsequently supported by confirmatory factor analyses (Adams & Jex, 1997). Test-retest reliabilities ranged from .51 to .70, after 5 months (Macan, 1988).

Feather and Bond's (1983) *Time Structure Questionnaire (TSQ)*. The 17-item scale measures the degree to which people think their time is structured and purposeful. Bond and Feather (1988) reported a test-retest reliability of .76 over 15 weeks. The 5-point scale ranged from (1) yes, always to (5) no, never. One item ("Could you tell how many useful hours you put in last week?") used a scale ranging from (1) would have no idea to (5) yes, definitely. Higher scores indicate the presence of time structure and purposeful activity. A composite TSQ score was computed.

Landy, Rastegary, Thayer, and Colvin (1991) *Time Urgency Scale (TUS)*. The 33-item scale measures five factors: (a) competitiveness (e.g., "I have a strong need to excel in most things"; 6 items); (b) eating behavior (e.g., "I eat rapidly, even when there is plenty of time"; 5 items); (c) general hurry (e.g., "I usually work fast"; 5 items); (d) task related hurry (e.g., "I often feel pressed for time"; 3 items); and (e) speech pattern (e.g., "I talk more rapidly than most people"; 5 items). The remaining 9 items were not included in any scale factors. Test-retest reliabilities over 4 weeks ranged from .66 to .73, and parallel form reliabilities ranged from .68 to .86 (Landy et al., 1991). The 5-point scale ranged from (1) strongly disagree to (5) strongly agree. Composite scores were computed for each of the five dimensions, with higher scores indicating greater time urgency.

Smith, Sala, Logie, and Maylor's (2000) *Prospective and Retrospective Memory Questionnaire (PRMQ)*. The frequency of prospective and retrospective memory failures was assessed with 16 items using a 5-point scale ranging from (1) very often to (5) never. Example items include: "Do you decide to do something in a few minutes' time and then forget to do it?" (Prospective memory) and "Do you forget something that you were told a few minutes before?" (Retrospective memory). Because Crawford et al. (2003) found that the best fitting model contained both a general memory

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