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Current psychometric and methodological issues in the measurement of overgeneral autobiographical memory

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ABSTRACT

Autobiographical memory is a multifaceted construct that is related to psychopathology and other difficulties in functioning. Across many studies, a variety of methods have been used to study autobiographical memory. The relationship between overgeneral autobiographical memory (OGM) and psychopathology has been of particular interest, and many studies of this cognitive phenomenon rely on the Autobiographical Memory Test (AMT) to assess it. In this paper, we examine several methodological approaches to studying autobiographical memory, and focus primarily on methodological and psychometric considerations in OGM research. We pay particular attention to what is known about the reliability, validity, and methodological variations of the AMT. The AMT has adequate psychometric properties, but there is great variability in methodology across studies that use it. Methodological recommendations and suggestions for future studies are presented.

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Autobiographical memory can be defined as mental representations of events from one's past and semantic information about the self. Conway has broadly described these aspects of autobiographical memory as *episodic memories* and *the conceptual self*, respectively (see Conway, 2005, Figure 5). The retrieval of autobiographical memories is a complex process in which mental traces of past events and related semantic knowledge are shaped into mental representations in light of current goals and concerns. These mental representations can differ across many qualities, including their content, imagery, and emotional intensity. One fundamental dimension of an autobiographical memory is its level of detail, which is thought to be a function of a person's database of memory traces, reconstructive processes, mental schemata, goals of the self, and different retrieval strategies (e.g., Conway, 2005;

Conway & Pleydell-Pearce, 2000; Neisser & Libby, 2000). Indeed leading theories of autobiographical memory suggest that autobiographical knowledge is organized in a hierarchical fashion, ranging from broad *lifetime periods* to *general events* to the *event specific knowledge* that make up particular episodic memories (Conway & Pleydell-Pearce, 2000).

Given the rich nature of autobiographical memory, it is not surprising that many different methods have been used to study it. Methodological approaches have ranged from self-study in which individuals document their own experience and test themselves later on (e.g., Linton, 1975; Wagenaar, 1986) to intensive structured interviews (e.g., The Autobiographical Memory Interview, Kopelman, Wilson, & Baddeley, 1989) to interviews about an individual's life story (e.g., McAdams, 2008) to cue word tasks, such as the Autobiographical Memory Test (Williams & Broadbent, 1986), which derive from the methods of Sir Francis Galton, one of the earliest students of autobiographical memory (e.g., Galton, 1879b). Galton was also one of the first thinkers to call attention to psychometric issues. He wrote in 1879, "*Psychometry, it is hardly necessary to say, means the art of imposing measurement and number upon operations of the mind, as in the practice of determining the*

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reaction-time of different persons." (Galton, 1879a, p. 149). In this article, we consider issues related to "imposing measurement and numbers" on the qualities of autobiographical memory. In particular, we focus on the level of detail of autobiographical memory in the sense of specificity, which is a quality of memory that is of particular relevance to emotional disorders.

Research on the interface between autobiographical memory and emotional disorder over the last three decades has produced a large body of research on the importance and consequences of overgeneral autobiographical memory (OGM), which is characterized by difficulties in recalling and describing specific events from one's past. One manifestation of OGM is the finding that, when asked to provide a specific autobiographical memory in response to a cue word, some individuals do not furnish a specific event that occurred at a particular time and place (Williams et al., 2007). In other words, individuals sometimes fail to describe specific events. Instead, they might provide more general responses, such as references to extended periods of time or categories of events from the past. An example of a specific memory might be "I felt calm on the last evening of my summer holiday as I relaxed on the beach." In contrast, a category of memories might be "I feel calm whenever I watch a movie." Although OGM is related to several other cognitive phenomena including IQ, it is not completely explained by general memory deficits or low intelligence (for a review, see Williams et al., 2007, pp. 129–130) and is therefore thought to be a unique facet of cognition.

It is now well known that major depressive disorder and trauma-related psychopathology (e.g., acute stress disorder and posttraumatic stress disorder) are associated with OGM (for reviews, see Hermans et al., 2004; Moore & Zoellner, 2007; Williams et al., 2007). In addition, OGM has other significant consequences. For example, a high level of OGM has been found to predict depression and posttraumatic stress disorder after a trauma (e.g., Kleim & Ehlers, 2008), is associated with a worse course of depression (e.g., Hermans et al., 2008; Sumner, Griffith, & Mineka, 2010), and is associated with decreased social problem solving effectiveness (e.g., Goddard, Dritschel, & Burton, 1996). The relationships between OGM and other forms of psychopathology have also been examined. To date, OGM does not appear to be characteristic of anxiety disorders other than posttraumatic stress disorder and acute stress disorder (Williams et al., 2007), but there is some evidence of OGM in eating disorders (e.g., Dalgleish et al., 2003; Nandrino, Doba, Lesne, Christophe, & Pezard, 2006) and personality disorders (e.g., Jones et al. 1999; Spinhoven, Bockting, Kremers, Schene, & Williams, 2007; Study 2; but see Arntz, Meeren, & Wessel, 2002).

As future studies examine the relationship between OGM and psychopathology, it is important to attend to basic methodological features of these studies. One paradigm has dominated research on OGM and emotional disorders: the Autobiographical Memory Test (AMT; Williams & Broadbent, 1986). Although many studies have used the AMT, a number of different experimental parameters have been used to study the relationship between OGM and psychopathology (e.g., using different word sets or different target recall periods). Consequently, more attention to methodological differences within OGM research is needed because disparate findings may be, in part, attributable to methodological variations.

Research on OGM and psychopathology would be served well by considering the range of measurement approaches for autobiographical memory. In the AMT, autobiographical memories are cued and coded for level of specificity. The specificity of a particular memory can also be gleaned from narrative memory tasks, in which the structure and content of personal memories are coded. In addition to specificity, investigators can code for the presence of various themes in the content of the narrative, as well as the extent to which the narrative is structured and organized. Information on content and structure can then be related to important aspects of psychological functioning, such as subjective well-being, self-esteem, and psychopathology (e.g., McAdams, Reynolds, Lewis, Patten, & Bowman, 2001). Narrative approaches include McAdams's (2008) Life Story Interview, the Self-Defining Memory Task (Singer & Moffitt, 1991-1992), the Autobiographical Interview (Levine, Svoboda, Hay, Winocur, & Moscovitch, 2002), and The Emotions Interview (Rottenberg, Joormann, Brozovich, & Gotlib, 2005). These approaches may be useful additions to studies that assess the relationship between autobiographical memory and psychopathology.

In this paper, we review psychometric and methodological issues in OGM research. Because most studies of OGM have used the AMT, we pay particular attention to what is known about the reliability, validity, and methodological variations of this test. We also review some alternative methods to the AMT, and some conceptual issues with regard to scoring the AMT. Throughout the review, we highlight methodological considerations and directions for future research. By addressing methodological issues and how they may impact the measurement of important constructs, research on the relationship between psychopathology and OGM can be strengthened.

1. Measures of autobiographical memory specificity: the AMT and alternatives

We review a variety of methodological issues for the AMT and its variants, as well as the characteristics of the test. We describe some parameters of the AMT, such as the time frame for memories retrieved and the stimulus words used, and we describe how these parameters may influence research results. In addition to reviewing methodological variants, we also review and discuss the psychometric properties of the AMT.

1.1. The Autobiographical Memory Test (AMT)

The AMT is a cuing methodology; individuals are presented with cue words and are asked to produce a unique specific memory that the cue word reminds them of within a given time limit (e.g., 30 s). The cue words usually differ in valence, with most studies including both positive and negative words. Prior to the start of the AMT test trials, individuals are provided with the definition of a specific memory and they complete practice trials in order to ensure that they understand the instructions. A specific memory is an event that occurred at a particular time and place, and lasted for less than one day (e.g., in response to the cue *happy*, "the surprise party on my 18th birthday"; Williams et al., 2007). As it is conventionally administered, the AMT provides participants with few restrictions on the retrieval process aside from the response having to be a specific memory. Participants are told that the event could have happened recently or a long time ago, and that it could be an important or trivial event.

Responses on the AMT are coded as falling into one of several categories including 1) specific memories, 2) extended memories (memories referring to an event lasting for more than one day, e.g., "my week-long trip to Paris"), 3) categoric memories (memories referring to a class of generic events, e.g., "whenever I am with my family"), 4) semantic associates (general semantic information, and not a personal memory, e.g., "my dog"), or 5) omissions (a failure to respond within the allotted time limit). In addition to coding the type of response, researchers often record the latency to respond (i.e., the amount of time that elapses between when the cue word is presented and when the individual begins to respond). The examiner also notes if a response violates any of the instructions of