Childhood Anxiety and Memory Functioning: A Comparison of Systemic and Processing Accounts

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Information-processing models of childhood anxiety highlight the centrality of memory processes in the maintenance and intensification of anxiety. Recent advances in memory research allow for an increasingly fine-grained analysis of the relation between anxiety and memory. The relation between childhood anxiety and memory was examined in a sample of 160 high- and low-trait-anxious sixth through eighth grade children. Results indicated that anxiety predicted a memory bias toward negative relative to neutral information during conceptual but not perceptual tasks. Further, anxiety predicted a memory bias toward positive relative to neutral information on procedural tasks and a memory bias away from positive relative to neutral information on declarative tasks. These findings accent the complexity and multidimensionality of relations among childhood anxiety, the emotional valence of stimuli, types of cognitive processing, and memory systems in contributing to biases in children’s memory functioning.

Theories of anxiety in both childhood and adulthood make a number of predictions about the type of processing biases that characterize anxious cognition. A fundamental prediction of several theoretical perspectives is that anxiety is associated with preferential recall for threatening than nonthreatening information. For example, schematic theories suggest that threat schemata promote the processing of schema congruent information (Beck & Emery, 1985). Similarly, propositional network theories suggest that chronic partial activation of fear structures makes threatening information more retrievable by reducing the amount of additional activation needed to reach the threshold...
at which ongoing processing is influenced (Foa & Kozak, 1986). Finally, the preferential processing of threatening information during encoding (e.g., attention to threat) may lead to the disproportionate recall of such information (Cloitre & Liebowitz, 1991).

Advancing beyond this global hypothesis requires a framework for characterizing the dimensions along which memory functioning varies. Recent advances in memory research allow for increasingly multidimensional conceptualizations of memory functioning. Blaxton (1989) and Roediger (1990) noted that two primary classes of theories, systems and processing theories, have emerged to explain differential performance on memory tasks. Further, they argued that it is necessary to examine a model that crosses two types of processing (i.e., perceptual and conceptual) with two memory systems (i.e., declarative and procedural) to determine the independent effects of these factors. The resultant model, hereafter referred to as the Blaxton-Roediger model, contains four cells (i.e., perceptual-declarative, perceptual-procedural, conceptual-declarative, and conceptual-procedural). In this model, the need for conscious recollection of the encoding episode discriminates the declarative system from the procedural system. The primary type of features processed, physical versus semantic, discriminates perceptual processing from conceptual processing. In this model, explicit memory tasks fall into the conceptual-declarative cell and implicit tasks fall into the perceptual-procedural cell.

Blaxton (1989) identified memory tasks assessing each cell of this model. Word fragment completion and general knowledge tasks were designated as procedural memory tasks because they could be completed without reference to a specific study episode. Graphemic cued recall, free recall, and semantic cued recall were identified as declarative memory tasks because specific recollection of the original study episode was necessary for task completion. Blaxton (1989) used an empirical procedure to classify these tasks with respect to the type of processing they require. She found that free recall, semantic cued recall, and general knowledge tasks benefitted most from prior conceptually-driven processing, whereas word fragment completion and graphemic cued recall tasks were more enhanced by prior data-driven (i.e., perceptual) processing.

Theories of anxiety have discussed several specific processes that may underlie differential performance on various memory tasks. For example, MacLeod and Mathews (1991) argued that trait anxiety is related to the process of activation, but not elaboration. Activation is a relatively automatic process involving a strengthening of the internal structure of a representation in memory thereby making it more accessible. Elaboration is a more controlled process that strengthens the associative connections of a representation with other representations in memory thus making it more retrievable. MacLeod and Mathews (1991) predicted that anxiety should be associated with the disproportionate recall of threatening information on implicit but not explicit
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