

Public Abstract

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Title:The Role of Reduced Working Memory Resources in the Associative Deficit of Older Adults

Previous research indicates that older adults show problems with remembering associations compared to young adults, yet they remember single pieces of information about as well as young adults do (see Naveh-Benjamin, 2000). The purpose of the present study is to investigate whether reduced working memory (WM) resources affect associative memory and whether such a reduction can account for older adults' associative deficit. Three experiments investigated whether we can simulate an associative deficit in young adults by using concurrent tasks that reduce their WM resources by either increasing WM storage or WM processing demands of the concurrent task during a primary task in which they were required to learn name-face pairs and then remember the names, the faces, and the name-face associations. Results show that reducing both the storage and the processing resources of WM in the concurrent tasks each produced an associative deficit in young adults. However, further increasing the demands of the concurrent task for WM processing resources gradually increased the size of the associative deficit, whereas increasing the demands of the concurrent task for WM storage resources did not differentially affect associative memory performance. Furthermore, younger adults with low WM capacity or low WM online processing showed an associative deficit under full attention (FA) conditions compared to young adults with high WM span or high WM online processing. Thus, young adults who have lower WM capacity or WM processing behaved like older adults under the FA conditions. In summary, the present studies showed that one possible reason older adults have an associative deficit is a reduction in their WM resources, especially those related to WM processing.