Using an externalized recall procedure to unmask age-related deficits in inhibition

Michael J. Kahana (kahana@brandeis.edu)
Emily D. Dolan (edolan@brandeis.edu)
Colin L. Sauder (csauder@brandeis.edu)
Arthur Wingfield (wingfiel@brandeis.edu)
Volen Center for Complex Systems; 415 South Street
Waltham, MA 02454 USA

During recall from episodic memory, participants often censor themselves, omitting responses that they deem inappropriate. We designed an externalized recall procedure to unmask these censored responses. Specifically, we asked young and older participants for delayed oral recall of the words from the most recent list, but asked them in doing so to say all of the words that came into their minds, regardless of whether they came from the most recent list. Participants were instructed to press the space bar on a computer keyboard to reject any word that they reported coming to mind but that they believed was not from the most recent list. During traditional free recall, older adults make fewer correct responses and approximately twice as many prior list intrusions (recall of items that appeared on earlier lists) as younger adults. It has been theorized that the increase in prior list intrusions (PLIs) is due to an age-related inability to inhibit these responses (Hasher & Zacks, 1988; Kliegl et al., 1993). In the current study, 40 young and 40 older adults were first tested using standard delayed free recall. As expected, older adults recalled fewer correct items and also made approximately twice as many PLIs as their younger counterparts (Kahana et al., 2002). However, when given externalized recall instructions, there was no reliable age difference in the number of accepted PLIs and a relatively small difference in the number of rejected PLIs. By giving participants the opportunity to reexamine their responses, we were able to differentially benefit older adults, thus narrowing the age-related disparity typically seen in free recall. Implications for a theoretical understanding of underlying processes in free recall and effects of age will be discussed.

Acknowledgments

This research was funded by the National Institutes of Health grants AG15852 and MH55687 and the W. M. Keck foundation.

References

Hasher, L. & Zacks, R.T. (1988). Working Memory, comprehension, and aging: A review and a new view. In G. H. Bower (Ed.), *The Psychology of learning and motivation (Vol.22)*. San Diego: Academic Press

Kliegl, R. & Lindenberger, U. (1993). Modeling Intrusions and correct recall in episodic memory: Adult age differences in encoding of list context. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *19*, 617–637.

Kahana, M.J., Howard, M. W., Zaromb, F., and Wingfield, A. (2002). Age dissociates recency and lag-recency effects in free recall. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *28*, 530–540.