

ABSTRACT

The field of human gerontology has moved from a simple conceptualization of human aging as a universal decline in functioning to a conception of a joint combination of gains and losses (Baltes, 1993; Baltes, Lindenberger, & Staudinger, 2006). This conception of human aging is characterized by a differentiated and multidirectional view (rather than by a unidimensional decline) that also includes the potential for positive signs of old age. The multidimensional and multidirectional view of potentials and limits in old age is best illustrated by the joint and co-constructive effects of the biology-driven mechanics and culture-driven pragmatics (Baltes, Dittmann-Kohli, & Dixon, 1984; Baltes et al., 2006; Lindenberger, 2000). Whereas the plasticity of the mechanics (e.g., perceptual speed, memory) decreases with advancing age the pragmatics are maintained or even improved (e.g., wisdom, emotion regulation).

Recent work in the social cognitive aging literature (e.g., Hess & Blanchard-Fiels, 1999) encounters a domain of functioning that might as well reveal a positive trajectory into old age, namely emotional memory (e.g., Carstensen & Mikels, 2005; Carstensen & Turk-Charles, 1994). Memory for emotional material could be one aspect of memory functioning in which older adults show a more positive profile than young adults do. Specifically, some authors argue that older adults' memory prioritize positive over negative information and more so than young adults (e.g., Charles, Mather, & Carstensen, 2003). The empirical evidence for age-related differences in the positive-negative disparity of emotional memory is, however, inconsistent. Some studies find a positivity effect in older adults' memory (e.g., Charles, Mather, & Carstensen, 2003; Knight, Maines, & Robinson, 2002; Mather & Carstensen, 2003) whereas others do not (e.g., Denburg, Buchanan, Tranel, & Adolphs, 2004; Kensinger, Brierley, Medford, Growdon, & Corkin, 2003; Leigland, Schulz, & Janowsky, 2004). These diverging findings indicate that the positivity effect in older adults' memory is not robust.

In this dissertation project, questions about a memory advantage for positive information in older adults were considered in the context of research regarding the general role of emotions in memory. Research in several domains (e.g., attention, motivation, impression formation) suggests that negative entities (e.g., events, objects, information, traits) have a much greater psychological impact than positive entities (for reviews, see Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001; Taylor, 1991). For example, Pratto and John (1991) argue that negative information might attract more processing resources than positive information and therefore reduce the resources available to process other stimuli simultaneously: that is a tendency for *emotion-based processing prioritization for negative information*.

This processing priority given to negative information could also affect the memory system, in that negative information would be remembered with more accuracy than positive information (i.e., *negativity effect*) when individuals have to remember a list composed of

both positive and negative material (i.e., *emotion-heterogeneous context*). However, what happens if individuals have to remember material from a single valence category? In such an emotion-homogeneous context (i.e., lists of only positive, negative, or neutral material), no cues for *differential processing prioritization* for emotionally-toned information are available. Consequently, if processing prioritization plays a major role in the positive-negative disparity of emotional memory, no memory differences are expected in comparing emotion-homogeneous lists of only positive and only negative information.

These ideas on list context gave rise to the primary research question of this dissertation project: Are there age-related differences in remembering emotionally-toned material? If processing prioritization contributes to the proposed positivity effect in older adults' memory, a positivity effect is expected in an emotion-heterogeneous but not in an emotion-homogeneous list context. In contrast, if emotion-based processing prioritization influences (young adults') memory, a memory advantage for negative information is expected in an emotion-heterogeneous but not in an emotion homogeneous context.

To examine these ideas, memory performance of 72 young (aged 18 to 31 years) and 72 older adults (aged 64 to 75 years) was investigated in a multiple-trial free recall task for lists of positive, negative, and neutral words. To examine long-term effects of emotionally-toned information, memory was also tested one hour and one week after initial learning. In a between-subjects design, list composition was manipulated systematically in order to investigate memory performance under conditions that differently afford processing prioritization: one condition with strong cues for differential processing (three emotion-heterogeneous lists of positive, neutral, and negative words) and one condition with no cues for differential processing (emotion-homogeneous lists of either positive, neutral, or negative words). Based on a preparatory word rating study with 24 young and 24 older adults, 30 negative, 30 positive, and 30 neutral to-be-remembered words were selected for the experiment. Words were matched across valence categories for word frequency, word length, imagery, and age-relevance. Words were combined to form three emotion-homogeneous (lists of 30 negative, 30 positive, and 30 neutral words) and three emotion-heterogeneous lists (three mixed lists of 10 positive, 10 negative, and 10 neutral words).

Regarding the effects of valence, both list conditions revealed significant main effects of valence but different underlying pattern. In the emotion-heterogeneous list condition, both age groups recalled more negative than positive and neutral words. In the emotion-homogeneous list condition, however, both age groups recalled significantly more positive than neutral words. The comparison between lists of positive and negative words was not significant. In both list conditions, there was no evidence for the proposed positivity effect in older adults' memory (i.e., no Age x Valence interaction).

Follow-up analyses showed that the obtained findings were quite robust. The effects of valence were not moderated by (a) interindividual differences in person characteristics (e.g., current mood, fluid intelligence), (b) differences in word characteristics, or (c) the

subjective evaluation of the to-be-remembered words by the participants. The findings in the two long-term retention intervals supported the pattern of findings in the learning phase.

Contrary to some recent proposals in the lifespan literature, the present dissertation did not support the idea that age differently modulates memory for positive and negative material. However, across the two contexts, a differential pattern of recalling positive and negative words was found. In accord with proposals of Pratto and John (1991), participants recalled more negative than positive words in the emotion-heterogeneous list context, but not in the emotion-homogeneous list context. This finding is consistent with the idea that negative information receives processing priority in some contexts. Possible limits to the generalizability of the present findings (e.g. to non-verbal material) are discussed.