The Effects of Age, Memory Load, and Stimulus Type on Facial Recognition

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ABSTRACT

An experiment was conducted to assess the effects of age, memory load, and stimulus type on facial recognition. As these three factors have been implicated as important determinants in facial recognition (see Bäckman, 1991; Fulton & Bartlett, 1991; Shapiro & Penrod, 1986), the potential interactive role of these variables was examined. Thirty-two young and 64 older adults completed a facial recognition task to determine whether there were differences in recognition memory for three factors. The between-groups factors included the age of the participant (<40, 60 - 75, and >75) and memory load (low vs. high). The within-group factor was the stimulus face type (young vs. old). Participants saw 20 or 40 stimulus faces and then immediately attempted to recognise these faces when they were randomly mixed with an equal number of distractor faces in a single-interval, forced choice task. Signal detection analyses indicated that facial recognition accuracy declined with age. Older adults showed consistently poorer recognition than young adults. A main effect for memory load emerged. Performance decrements accompanied increased memory load but as all age groups were similarly affected, memory load did not interact with age. Neither did memory load interact with stimulus face type. In contrast to prior findings, stimulus face age affected only older adults who showed a marked deficit in the recognition of young stimulus faces. Young adults, however, were equally adept at recognising young and older stimulus faces. Differences between groups were not attributable to changes in response criterion, as all groups demonstrated similar levels of response bias. Results were discussed in terms of the marked interaction between stimulus face age and participant age, and the methodological implications of the ways in which variables such as load, stimulus face age, and participant age can affect the outcome of facial recognition studies. Changes in performance were shown to be a real difference in recognition memory rather than being a tendency toward reporting faces as 'old' or 'new'.

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