Emotion and Memory

Exploratory research question: If and how the influence of valence and arousal will vary across age

Emotional stimuli high in arousal will have a larger effect on subsequent memory than emotional stimuli
Regardless of emotional linkage, memory accuracy will increase with age

Hypotheses

The present study examined how associated emotional content influences the episodic memory of

Emotional information tends to produce a heightened recollection response compared to neutral

Improved memory for emotional stimuli over neutral stimuli may be attributable to preferential

Emotional events tend to be remembered better than non-emotional events (for reviews see

Methods

Participants

30 children (M=6.3 years, SD=0.42, range 7-9 years old)
30 adolescents (M=12.7 years, SD=0.55, range 11-13 years old)
29 adults (M=21.8 years, SD=0.52, range 18-43 years old)

Hypotheses

Regardless of age, emotional source pictures and item pictures paired with emotional items will be better remembered than neutral source pictures and item pictures paired with neutral neutral pictures.
Regardless of emotional linkage, memory accuracy will increase with age.
Emotional stimuli high in arousal will have a larger effect on subsequent memory than emotional stimuli with high valence.
Exploratory research question: If and how the influence of arousal and valence will vary across age groups.

Participants saw 60 IAPS pictures (source pictures) paired with 60 neutral images (item pictures). They rated each IAPS on valence and arousal and made a connection between the paired images.

5 minutes, filled with either snack break or filling out forms.

Participants saw 60 old and 20 new neutral item pictures, item and source memory for both the IAPS source picture and source valence were assessed.

Analyses

Valence ratings were grouped into 3 categories: negative (1-4), neutral (5), and positive (6-9)
Arousal ratings were grouped into 2 categories: low (1-4) and high (5-9)
A repeated measures ANOVA was conducted in order to compare 1) item memory, 2) source memory for the IAPS picture, and 3) source memory for the valence of the IAPS picture (i.e., source valence) across the three age groups.

Effects of Valence on Item Memory

Children

Adolescents

Adults

All age groups showed (slightly) better item memory for positive pictures than neutral pictures.
There was no difference between negative and neutral or positive and positive pictures, F(2, 170) = 2.88, p=.06

Effects of Valence on Source Memory

Children

Adolescents

Adults

All age groups showed better source memory for the original valence rating of positive and negative pictures compared to neutral pictures, F(2, 166) = 5.06, p=.01

Discussion

All ages exhibited a marginal effect of valence on item memory, in which positive pictures were remembered better than neutral pictures.
All ages also showed a significant effect of valence on source valence memory, in which participants recalled their original valence rating for positive and negative pictures better than for neutral pictures.
This suggests that the effect of emotion is in place by 8 years of age and is relatively stable over time.
Additionally, adolescents and adults showed better memory for all pictures than children, regardless of the background picture with which the neutral item was paired. This effect is consistent with previous research documenting memory improvements with age.

Future Directions

In the future, studies should include samples of children younger than 8 years to better determine the age of onset of the emotion effect.
Future research should also explore how developmental changes in recall of emotional content are associated with on-going functional and structural maturation of the brain, as engagement of different neural regions is known to contribute to effects of emotion on memory.

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References


The effects of emotional valence and arousal on item and source memory across development
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