Quantifying autobiographical memory

Overview

What kinds of details get included in memories about our own lives? How do the quality and contents of these memories change as time passes?

This in-class assignment is based on methods from the following study:

Gardner, R. S., Vogel, A. T., Mainetti, M., & Ascoli, G. A. (2012). Quantitative Measurements of Autobiographical Memory Content. PLOS ONE, 7(9), e44809. https://doi.org/10.1371/journal.pone.0044809

Instructions given to students

Results

Students viewed memory prompts (lists of randomly selected words) and recalled 16 memories about their lives. After recall, students rated the memories according to how many details (“elements”) were present from each of 8 different categories. Students also rated whether the memories evoked positive or negative emotions, and how intense the emotions were during recall.

These results summarize the responses of 46 students, most of whom were 21 years old.

Error bars in graphs represent the standard error of the mean.

Frequency of memories by age at which events occurred

Memories of recent events, especially from within the past two to four years, were more commonly recalled.

Number and type of elements in the memories

More recent memories were rated to contain more detail (elements) than older memories.

Interestingly, there was a significant dip in the amount of detail present in memories from around the

age of 12.

This graph combines elements across all 8 categories:

Memories included more details about people than anything else. (Note that the category “details” stands for “other details.”)

Gender effects

Overall, the number of details for memories about different ages was similar for females and males.

Correlations among the types of elements retrieved

The number of people and place elements per memory were rather uncorrelated with the other categories. This could mean that memories about people and places are retrieved independently from other kinds of details.

This graph plots the mean correlations coefficient between the given category and each of the other 7 categories.

Lower mean correlations indicate that a type of element was retrieved independently of other element types.

Valence and intensity of emotion elicited by memories

Gender effects

There appeared to be significant age by gender interactions in emotional content of memories.

However, as always, one should be cautious about generalizing from these results, especially given the smallish number of individuals who participated.

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