research@ua

2017

universidade de aveiro
theoria poiesis praxis

Adaptive Memory: The Mnemonic Value of Contamination

Natália L. Fernandes[1], Josefa N. S. Pandeirada[1,2,3], Sandra C. Soares[1,3,4], James S. Nairne[2]

1 — Department of Education and Psychology, University of Aveiro
2 — Department of Psychological Sciences, Purdue University, USA
3 — CINTESIS, University of Aveiro
4 — Division of Psychology, Department of Clinical Neuroscience, Karolinska Institut, Sweden

Humans evolved an adaptive disease avoidance system – the Behavioral Immune System, that is specially attuned to cues connoting infection risk. When perceived, these cues drive affective, cognitive, and behavioral responses, which work jointly to enhance the organisms' chances of survival. We investigated one of the cognitive components of this system: memory. We hypothesized that people should preferentially retain potentially contaminated items in order to adopt preventive behaviors towards those items.

In a set of studies, participants were shown pictures of objects described to have been touched by sick or healthy people. Importantly to our goals, half of the objects were accompanied with a short description of a symptom of sickness or with a face containing signals of infectious diseases (contamination condition); the other half of the objects were presented with a description of a physical characteristic of a person or with a healthy-looking face (non-contamination condition). During the encoding phase participants decided if the object had interacted with a sick or a healthy person considering the information presented with the object. Then, after a short distractor task, in a surprise a memory task, participants were asked to recall all of the previously-presented objects. The data (collected in the USA and in Portugal) revealed that participants recalled more of the objects that were presented in the contamination condition, in comparison to those from the non-contamination condition. Also, when the faces were described as being of actresses using make-up to represent the disease-connoting cues, the effect was no longer obtained, confirming the need for fitness/relevance for the effect to occur.

These results provide the first demonstration of a mnemonic 'contamination effect' and add to the growing body of evidence supporting the idea that memory works in the service of maximizing our chances of survival and of reproduction, the driving wheels of evolution.