

Too Much Knowledge Can Be Bad For Some Types Of Memory, Study Finds

May 23 2005

Sometimes knowledge can be a bad thing, especially when it comes to exact remembering of certain things.

A new study found adults did better remembering pictures of imaginary animals than they did remembering pictures of real cats.

"The adults remembered these artificial insect-like creatures they had just seen for the first time much better than they did the cats that were very familiar to them," said Vladimir Sloutsky, co-author of the study and professor and director of the Center for Cognitive Science at Ohio State University.

The results show how some types of memory might be better when people forget what they know and instead approach a subject with a child-like sense of naïveté.

"Verbatim memory is often a property of being a novice," said Sloutsky, who is also associate dean of research at the university's College of Human Ecology . "As people become smarter, they start to put things into categories, and one of the costs they pay is lower memory accuracy for individual differences."

The ability to categorize is often very helpful, but this study shows how it can lead people to ignore individual details, Sloutsky said. The inappropriate use of categorization can also lead to problems such as stereotypes of groups, Sloutsky said.

"If you categorize a person, you will be less likely to remember

individual details about the person. At the same time, these individual details undermine stereotypes,” he said.

Sloutsky conducted the study with Anna Fisher, a graduate student at Ohio State . Their research will be published in the May/June 2005 issue of the journal *Child Development*.

In this paper and in a previous one (see [here](#)) Sloutsky and Fisher did a series of studies that found children have better recognition memory than adults. The reason has to do with how people learn to categorize and classify groups, he said.

In one study published in the new *Child Development* paper, 5-, 7-, and 11-year-old children and college-age adults viewed a picture of a cat and were told that it had “beta cells inside its body.” They were then shown 30 pictures of other animals (either cats, bears or birds) and asked whether the animal had beta cells in its body. The participants were given feedback after they were shown each picture that indicated that only cats had beta cells.

Later, the participants were shown 28 pictures of animals and were asked if that exact animal had been shown previously. Going into the experiment, the participants did not know they were going to be given this recognition test.

The results showed that the younger the children, the more accurate they were in remembering which pictures of animals they had seen before, and which they had not. At the same time, adults were not accurate at all.

The reason children did so much better than adults was that they had not yet learned to categorize animals, he said. Once adults learned in this experiment that only cats had beta cells, they stopped paying attention to the details of the pictures that would help them recognize the pictures

later. Children, on the other hand, looked closely at each picture to determine if it was similar to the picture of the cat which had beta cells.

“There seems to be an inverse relationship between the ability to categorize and the ability to remember details,” Sloutsky said. “If you're very attentive to details – like the children in this experiment – you can't create categories. But without ignoring the details, we would be unable to categorize.”

Similar results were found in the earlier paper, but Sloutsky said this new paper provided two important details.

First, they found that there is a gradual decrease in recognition memory from children to adults – there is no large jump that occurs as people approach adulthood.

Secondly, the study shows that it is “lack of knowledge – not something specific to children – that helps make recognition memory more accurate.”

That's why adults had accurate, child-like memory in the experiment in which they were tested using the imaginary animals.

This experiment was almost exactly like the first one, in which adults and children were shown pictures of cats, bears and birds and had to remember which pictures they had seen before. However, in this new experiment, adults were shown three different types of imaginary, insect-like creatures that Sloutsky calls “ziblets.” In this experiment, adults performed as well as children did in the first study in remembering which ziblets they had seen before without having many “false positives.”

The difference here was that the adults had no previous knowledge that

allowed them to easily categorize the ziblets without paying close attention to each picture.

“They remembered them because they had to pay close attention,” Sloutsky said. “They remembered the details.”

Sloutsky said adults are flexible and can pay attention to and remember details if they are asked. However, the key is for people to know when to “turn on” their ability to remember details and when the ability to categorize is more important.

The results of this study also hold implications for memory research, he said. The results show that knowledge of a category affects recognition accuracy in a specific way – it increases false positives. In many of these experiments, for example, adults did as well as children in correctly identifying pictures they had seen before, Sloutsky said. But this gives a misleading view of the adults' memory if you don't also note how often they said they saw pictures they actually had not.

Source: Ohio State University

Citation: Too Much Knowledge Can Be Bad For Some Types Of Memory, Study Finds (2005, May 23) retrieved 24 April 2024 from <https://phys.org/news/2005-05-knowledge-bad-memory.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.