In Short-Term Memory, Faster Is Not Better, Study Shows

November 7 2005

For years, researchers have said that the short-term memory increases as children mature, which is important because the memory serves as an index for intelligence and mental maturation. It has been proposed that a person's memory span increases because of growth in the speed of mental processing. Now, a researcher at the University of Missouri-Columbia has dramatically increased the speed of a child's ability to verbally recall information but found no accompanying improvement in short-term memory.

"It has proven infeasible to train children to increase the maximum speed of recitation or rehearsal of words," said Nelson Cowan, an MU psychology professor. "However, until now, there has been no attempt to speed up recall itself."

Second-grade children and college students participated in the first experiment. The participants were presented with random numbers one through nine, either visually or verbally, and were asked to recall them in rapid fashion. Cowan found in the first experiment that the college students and children repeated lists quicker with rapid presentations of the list (two items per second) than with slower presentations (one item per second). However, the speed had no effect at all on their ability to keep this information in their memory spans.

Second-grade children participated in the second experiment. The biggest change in the experiment was that, in one group, the children were asked to repeat the number lists at whatever speed seemed best to

them, while in the other the children were instructed to speak their responses as quickly as possible without making errors.

Cowan found that children could be taught to repeat lists at speeds much faster than they ordinarily use in immediately recalling information. The striking outcome was that this increased speed did not improve their recalling accuracy at all, Cowan said.

"The study helps support the theoretical view where capacity, rather than speed, may be the primary change in working memory over a person's life span," Cowan said.

Cowan's study will be published in the January edition of *Psychological Science*.

Source: University of Missouri