Source: Financial Times {Main}
Edition:
Country: UK
Date: Friday 6, July 2007
Page: 9
Area: 96 sq. cm
Circulation: ABC 452930 Daily
BRAD info: page rate £46,700.00, scc rate £91.00
Phone: 020 7873 3000
Keyword: University of Exeter

Brain signal stops error repetition

Scientists have discovered why we learn from our mistakes

Psychologists from the University of Exeter identified an "early warning signal" in the brain that helps us avoid repeating previous mistakes. This mechanism reacts in just 0.1 seconds to things that have resulted in us making errors in the past, according to the research published in the Journal of Cognitive Neuroscience.

Previous studies have shown that we learn more about things for which we initially make incorrect predictions than for things for which our initial predictions are correct. The element of surprise in discovering we are wrong is conducive to learning, but this research is the first to show how rapid our brain's response can be.

For the study, a group of volunteers took part in a computerised task, which involved them making predictions based on information they were given.

New information was then introduced, which made many of their predictions incorrect, so they needed to learn from this in order to avoid repeating the error.

While they did this, their brain activity was recorded. The researchers recognised activity in the lower temporal region of the brain, the area closest to the temples, which is responsible for the recognition of visual objects.

This occurred almost instantly after the person was shown the visual object that had previously made them make an error, and before there was time for conscious consideration.

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