The brain's reaction to errors is studied

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From accidentally deleting a computer file to dropping something, we all make mistakes -- and now Michigan scientists are learning how that affects the brain.

University of Michigan researchers used an imaging scan to view the human brain the instant a costly mistake occurs. What they've found might help scientists better understand mental health problems.

The scientists found the brain's rostral anterior cingulate cortex, or rACC, becomes much more active when a person realizes making an error of some consequence. By contrast, the same area doesn't show the same activity when the mistake is minor or doesn't carry a penalty,

The rACC is thought to be involved with emotional responses, and scientists had suspected it might also be involved in response to costly errors. But this is the first brain-imaging study to test that idea.

"In general, the response to a mistake that cost ... money was greater than the response to other mistakes, and the involvement of the rACC suggests the importance of emotions in decision and performance-monitoring processes," said Dr. Stephan Taylor, an associate professor of psychiatry and lead author of the research.

The research is published in the Journal of Neuroscience.