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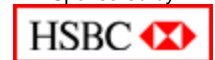
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Doing two things at once is inefficient, and could be dangerous, researchers say

By JEFF SALLOT

Monday, August 6, 2001 – Print Edition, Page A1

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OTTAWA -- Trying to do two things at once isn't such a hot idea because . . . just a sec, the cellphone is ringing.

Where were we? Oh yeah, multitasking has a hidden cost, scientists say, because . . . sorry, an important e-mail has just come in.

Okay, we're back and we are going to really concentrate now on new studies demonstrating that even as technology allows us to do more than one complex task at a time we may not be doing any of them very efficiently.

People lose significant time as they toggle between tasks, such as writing with a word-processing program while crunching numbers with spreadsheet software, says a study being published today by the American Psychological Association.

The study, conducted by researchers at the U.S. Federal Aviation Administration and at the University of Michigan, gives parents a solid scientific argument when they tell their kids not to chat on-line with friends while trying to do homework.

The research also adds weight to the case for banning cellphone use by car drivers.

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"A mere half second of time lost to task switching can mean the difference between life and death for a driver using a cellphone," the researchers said.

A separate study by psychologists at Carnegie Mellon University in Pittsburgh came to the same conclusion by taking pictures of the brain, which show that multitasking is not an efficient use of brainpower.

Anyone who has cooked dinner while taking care of a two-year-old understands multitasking.

So do pilots of modern aircraft who may have to monitor fuel gauges, engine performance indicators and navigation radars and make announcements to passengers about weather conditions almost simultaneously, said Joshua Rubinstein, a researcher with the Federal Aviation Administration.

What's new is that the proliferation of computers and other advanced technologies in modern workplaces tempt people to believe they should be using "spare moments" to perform additional tasks, he added.

"In our complex world it is almost a cultural issue as we try to do more and more in less time," Dr. Rubinstein said. "But multitasking could actually be less efficient if you are doing rapid switches back and forth."

The study measured the time it took subjects to perform varied tasks of increasing complexity.

The tasks included solving math problems -- from simple addition to long division -- then switching to matching pictures of geometric objects by size, shape, colour or number.

The "rule activation," or time it takes to think of the rules for performing the next task, can take considerable time even if the new task is not complex, the study says.

"Thus, multitasking may seem more efficient on the surface, but may actually take more time in the end," the researchers said.

The researchers believe the human mind has what they call "the mental CEO," a process of executive control that allocates brainpower to various activities.

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- F. Sweet, Toronto



"For each aspect of human performance -- perceiving, thinking and acting -- people have specific mental resources whose effective use requires supervision through executive mental control," they say.

In the second study, the Carnegie Mellon psychologists used magnetic resonance images of brain activity to see what happens during performance of a single task and then during multitasking. They discovered that brain activity does not double when people try to do two things at once.

Rather, brain activity devoted to each separate task actually drops, their study concluded.

This means people undertaking two difficult tasks at the same time do neither one as well as they would if they did one alone. This is so even if the two tasks involve two different areas of the brain that do not seem to overlap, the study says.

The researchers took MRI pictures of the brains of subjects who were asked to listen to complex sentences to judge if they were true or false, and to look at pairs of three-dimensional objects from differing angles to try to figure out if the objects were the same.

Each task was done separately. And each task activated a different part of the brain to a high degree.

But when the two tasks were done at the same time the total level of brain activity increased only marginally. And the amount of tissue activated in each region of the brain by each of the tasks decreased.


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