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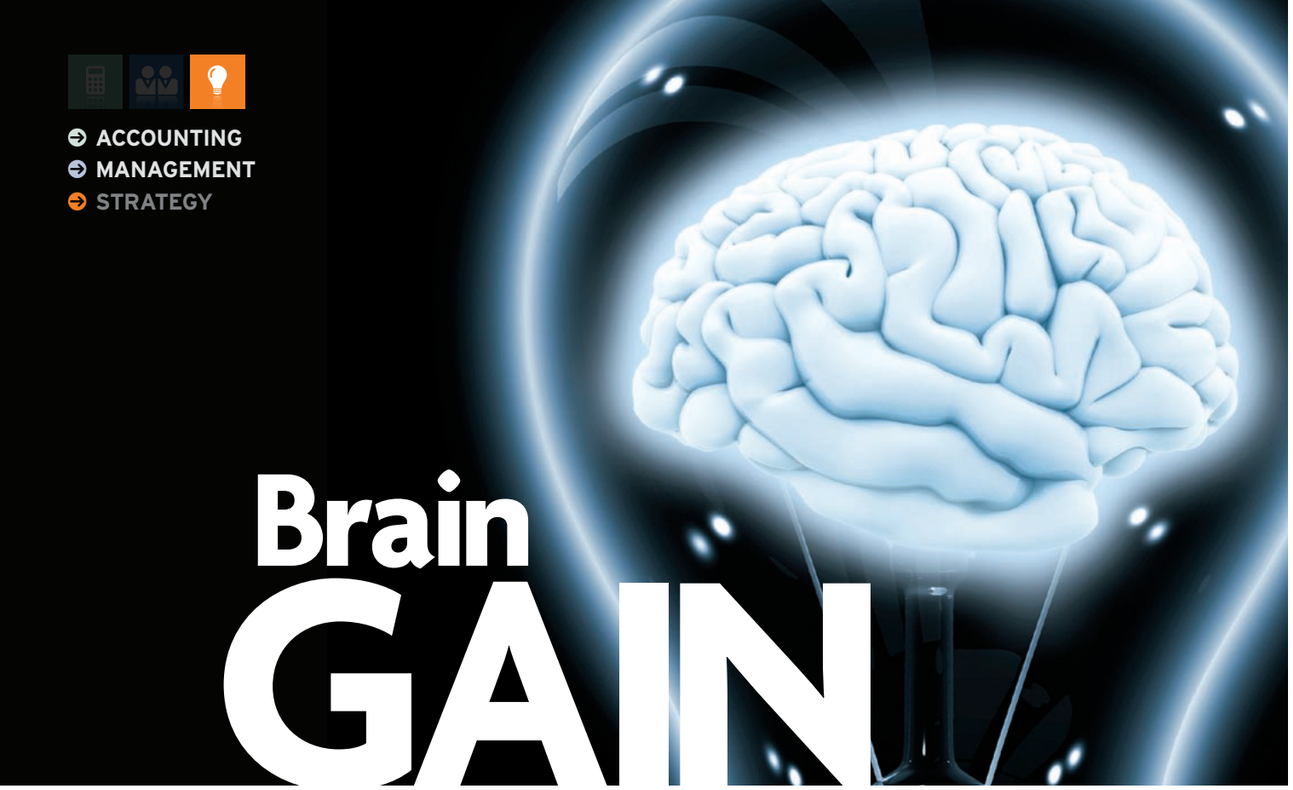

Brain GAIN

Scientific evidence supports the idea that exposing the brain to new experiences does improve its creative abilities

By **DON NILSON,** CMA, FCMA

Re-create getting up this morning and appearing in front of the bathroom sink to brush your teeth. Now imagine picking up your toothbrush and beginning to brush those teeth. STOP! Roll back the flashback reel and this time pick up your toothbrush with your opposite hand. According to Princeton University neuroscience professor Sam Wang, you may just have taken a first step to being more creative!

According to a recent Conference Board of Canada report, Canada ranked 14th out of 17 Western nations in innovation, measured across 12 indicators. In 1932, Dr. Louis Leakey made his famous discoveries at Olduvai Gorge in Africa. Included there was a "cutting tool" carbon-dated to 1.8 million years ago, which indicated man's ability to assess a need and "create" something to fulfill that need. Let's call this the anniversary date of the birth of creativity.

We commence to think *in utero*. We then enter the physical world where various people and educators endeavour to inculcate us with thoughts. But, do we ever spend time THINKING about THINKING? My opinion is that we do not, and we should. Have we examined our decision-making style? Analytical? Capricious (Go on – admit it)? Heuristic? Consultative? Fact-oriented? Gut-oriented? I argue that thinking about thinking is important because decisions matter . . . a lot!

Your brain, of course, is the key tool you bring to thinking and decision-making. What training regimen and fitness tests do you put it through? If you will buy into a pure metaphor that the brain is like a muscle, then obviously that muscle needs exercise and stimulation. Surround yourself with big thoughts. Hang around people with big thoughts. Eschew trivial, little thoughts and those that engage in them. A high school classmate of mine studied at Cambridge, and he said that the biggest take-away from being there was being surrounded by deep thinkers. Can you say that of your own social circle?

Professor Gregory Berns has joint postings at Emery University in neuroscience and economics. His recent book *The Iconoclast* identified three characteristics of people who think outside the pack. In summary, he said that these people differ in their neural **processes of perception and of fear** and they also differ in their **social intelligence**.

The brain consumes approx 20 per cent of the body's energy supply. It is the original eco-freak and is tirelessly energy-efficient. A spin-off of this, however, is that it likes to short-circuit "the energy cost" of incoming information by cataloguing it to something seen before, so that it can be processed more quickly, thus conserving energy. The downside is that new information/experience may be truncated to fit the previous mold. Iconoclasts trick their brains by bombarding them with NEW experiences that can't be jigged to previous ones. The brain is thus forced to make new neural imprints, and each neuron may make five to 15,000 connections to other neurons. These new experiences can "re-wire" the brain, sometimes thus creating "Ah-ha" moments that weren't apparent before. New experiences mean, for instance, brushing with your wrong hand, going someplace you haven't been, taking a different route home from work, trying new things, reading broadly or connecting with different people, occupations and cultures.

The amygdala is the area of the brain that processes fear and emotional responses, and it has a long memory. The fear factor can kick in and repel away from NEW experiences encouraged to broaden perception. Fear can be re-phrased in the business context to "uncertainty," which itself can be dichotomized between stochastic risk, which can be assessed and managed more predictably, and ambiguity which is less manageable and more emotional, and therefore more disconcerting to the worry-inclined. Iconoclasts use a trick to process fear differently. They re-frame uncertainty from the emotional ambiguity track to the more logical, fact-based risk track.

Another trick in group problem-solving is to remove the individual's fear of being perceived as stupid. The group, and its Chair, needs to **encourage** a barrage of seemingly stupid ideas, which may follow a fault line around the table and become the seed of something clever. The brilliant dance choreographer Twyla Tharp called this "scratching."

Another creative thinking trick is to stare down all assumptions, which create artificial constraints. Try the metaphor of applying boiling water from a kettle on everything in sight and see what melts!

Yet another trick, of course, is to weigh in with a more balanced left brain/right brain orientation. The pre-existing balance of left and right will vary from person-to-person. I believe, for the accountant-ish left brainers, that the right brain can be brought into greater proportion by evoking it through stimulatory exercises. Right brain triggers, like listening to evocative music or visualizing art, work for me.

Creativity is a habit and it requires crossing the boundaries of domains, which in turn requires some pre-disposition to do so. I use the metaphor of a sea anemone, whose tentacles pulse in the ocean current picking up bits of food as they flow by. So with your brain, you need to inculcate an intellectual curiosity about many subject matters foreign to your mainstream world. Armed with this, your anemone tentacles floating out there in the world at large will be more inclined to digest, rather than ignore, bits of knowledge outside your expertise that pass by.

Innovators tend to be self-taught, and they are pre-disposed to educate themselves intensely. The ability to grow is related to the ability to entertain the uncomfortable. Interestingly, social science research has shown that people with deep expertise in specific subject areas find it more difficult to break out of established patterns of thought.

Many creative ideas need to incubate. Joseph Priestly, the "discoverer of air," was a fan of collecting seemingly senseless ideas and storing them away somewhere in the back of the brain. He termed it "socializing with your own ideas." When they have found a home, later thoughts and experiences resident in other neurons may find a neural connection to these previous ideas, and make something clever. The brilliant minds of the 18th century collected their thoughts in a personal journal that was then called a "common-place" book. Tim Berners-Lee, the inventor of the Internet, used his own, modern-day "common-place book" to hatch his planet-changing idea. Priestly was also a fan of what we today would call "retreats." He would argue that innovation and discovery need this leisure time.

The invention of "fMRI" ("f" stands for functional) in the '90s was a major advance over MRI and CAT scans in imaging technology. The new insight into the brain, thanks to fMRI, is to neuroscience today what the inventions of telescopes and microscopes were to their respective fields centuries ago. Neuroscientists now believe that almost any function in the brain can be changed through hard work, practice and experience gaining. That translates as "hope" for those who wish to keep on growing. ■

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