

ARE YOU FLEXIBLE?

COGNITIVE FLEXIBILITY CAN SMOOTH OVER LIFE'S UNEXPECTED MENTAL BUMPS



INSCRIPTIONS Editor
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I was really looking forward to the 7 p.m. presentation in Northern Arizona University's communications building. A team of NAU photo-journalism students was scheduled to debut a collection of still photos and videos documenting the December 2012 university-sponsored trip to Tibetan refugee camps at Mainpat in eastern India. My daughter Jillian and I had traveled to Mainpat with that group, and I anticipated with mounting curiosity the students' visual interpretation of our experience.

Making the 275-mile drive from Safford to Flagstaff in record time, I was more than an hour early when I pulled up to the south-campus building that houses NAU's dental hygiene department, where Jillian, about



to graduate from the program, was working her last Wednesday night clinic. I walked up the stairs to the second floor and parked myself in the hallway to wait.

I was flipping through a National Geographic article on the mansions of newly wealthy Romanian gypsies—call them Roma rather than the pejorative term gypsies, the author instructs—when Jillian rushed into the hall.

“Hey, Dad, do you have a few minutes?” Jilly asked.

I looked up.

“Can you help in the clinic?” she continued. “The seniors need a dentist to do exams and treatment planning, and the dentist who usually comes tonight can’t make it.”

I peered over my glasses and said nothing. I had motored almost five hours out of the desert and into the high country for an entirely different purpose. I didn’t really want to get bogged down with a distraction. So I hesitated.

I experienced in that moment what behavioral scientists call cognitive inflexibility. More than just a lack of spontaneity, cognitive inflexibility entails the incapacity to accommodate multiple ideas or endeavors at the same time. Males are notoriously inflexible, as are left-handed people and obsessive-compulsive types. For me, that's three for three. What's more, my daily activities are dedicated and focused, which makes me good at concentrating on small spaces in dark places for long periods of time and bad at both bright cocktail party conversation and improvisation.

In my brief sputtering instant of psychological disarray I was pushed into action by a friendly third-party intervention. Just as I began to frown, Jilly's instructor Sue Harris burst into the hallway and shook my hand. "Oh, I'm so sorry to bother you," Sue bubbled. "Thank you so much for helping us. The students would be simply stuck without you." Jillian smiled and nodded.

I quickly switched mental gears. Putting Mainpat out of my mind, I wrapped myself into a gauzy disposable gown, snapped on snappy pink examination gloves, and sat down to greet the first patient. Jillian grinned triumphantly.



Cognitive flexibility concerns the ability to adapt thinking to fit the problem at hand, to shift from task to task at work, or subject to subject in conversation, smoothly adjusting to unexpected changes. It helps people pursue complex activities, multitask, and find new, adaptable responses to developing needs. Such suppleness of mind helps us produce diverse ideas, consider alternatives, and modify our behavior to manage changing circumstances.

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Related to reading comprehension and fluency, fluid intelligence (the ability to think abstractly, as opposed to the other kind of mental aptitude, crystallized intelligence, which is the knowledge that derives from experience and training) and the capacity to solve problems in unfamiliar situations, cognitive flexibility is important for creativity, learning, and redirecting attention.

To be sure, before engineers and computer scientists elevated the concept of multitasking to a state of grace among the general population, cognitive flexibility was considered outside the norm. As Wonderland's Queen told Alice, in a line that undoubtedly embodies the apotheosis of multilayer thinking, at least in nonsense literature, "Why, sometimes I've believed as many as six impossible things before breakfast." But these days, cognitive flexibility is considered an essential trait of effective executive functioning, involving as it does the ability to control thinking, including memory, emotions, planning and organization.

As critical to happiness and success as cognitive flexibility must be, I suspect that in many instances dentists like me are no good at it. Dentists are trained to the glories of crystallized intelligence. We are disciplined perfectionists, intolerant of variance and uncertainty. We are determined. Unyielding. Conservative. Authoritative. Driven. We don't allow wrinkles in our timetable, so we reschedule late patients and people who unexpectedly break cusps and whose occlusal composites turn into root canals. Such rigid traits can make us excellent producers. We settle into routines that maximize efficiency, but that unfortunately also tend to harden into mental ruts.

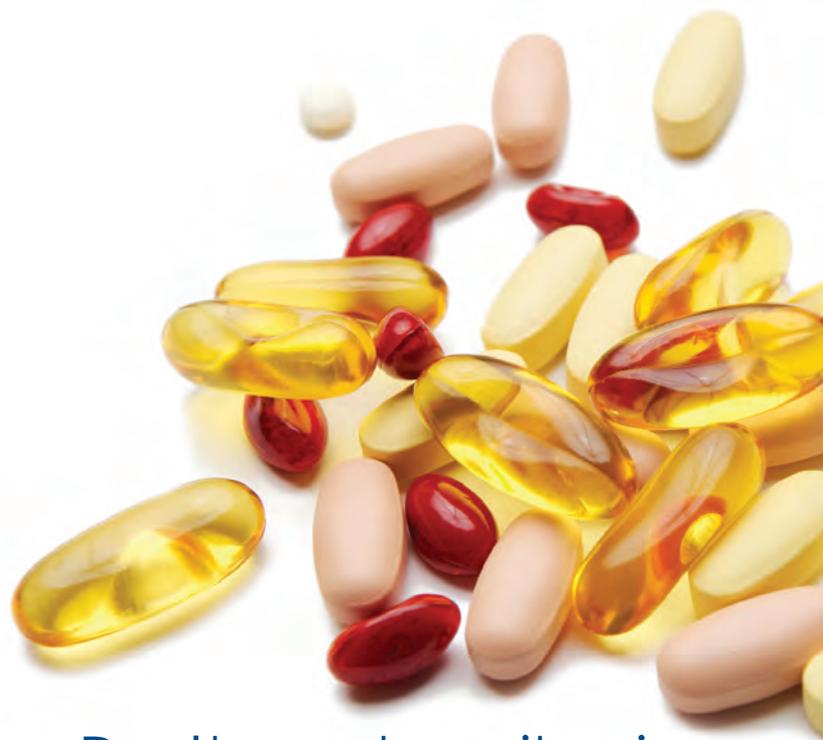
Stress, as you might imagine, further lowers cognitive flexibility.

As an aspect of intelligence, cognitive flexibility can be improved. One-note wonders like me can overcome centration, the tendency to think and focus on only a single aspect of a situation at a time. But in the search to build neurons and synapses, most cognitive enhancers don't work, warns Newsweek reporter Sharon Begley in her January 3, 2011, article, "Can you build a better brain?" Accordingly, don't count on vitamins, beta-carotene, flavonoids, or omega-3s to goose your gray matter. Neither blueberries nor crossword puzzles offer much hope, either.

While you can't beef up your brain with exercise, exactly, some activities do help. Cultivating the skills we already possess doesn't make us much smarter, but learning new skills—such as another language or ballroom dance moves—can create new and more complex, interrelated neural pathways. Stress reduction, unsurprisingly, promotes cognitive flexibility, as does exposure to diversity (such as occurs during travel).

Begley also advises aerobic exercise. A 2007 study suggested that 35 minutes on a treadmill at 70 percent of maximum heart rate boosts mental agility. If you need to solve a big problem, go for a run.

Finally, Begley writes, meditation increases cognitive flexibility by strengthening the parts of the brain that control attention and sensory input. So does playing videogames, which bumps up motor control, visual acuity, working and long-term memory, and rapid decision-making.



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Jilly and I were late for the presentation, but we arrived in time to help answer audience questions about the Tibetan diaspora. The photojournalism students replayed for us the videos we had missed, full of Tibetan prayer flags fluttering and monastery gongs clanging in Mainpat's digital dawn. As I watched, I felt my awareness divide. At the same time that my memory banks transported me back to the refugee camps, they also inserted a few curling reflections on my brisk activity in the dental hygiene clinic.

I considered that I could get used to the kind of split-level extemporaneity I had just encountered. I felt energized. Enlarged. Just a tad more sentient. Not a bad payoff for an hour's work.



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