Whole grains, whole foods, whole screen. Whole brain? It turns out that the notion of a compartmentalized, divided brain-- with the left hemisphere used for logic, math, reading and reasoning and the right hemisphere used for the emotions, spatial perception, art and creativity has been exaggerated. It is a myth that some students are left-brain and some right-brain dominant--some auditory learners and some visual learners. Daniel Willingham, a professor of cognitive psychology at the University of Virginia, writes in the Washington Post (Sept. 20, 2010) that creativity is "so diverse that it cannot be localized in the brain very well." In a brain imaging study he conducted with colleagues, they found that "14 brain areas contribute to the sequencing task we examined. 'Sequential thought' is supposed to be a left-brain function, but we observed five areas in the left hemisphere, five in the right, and four bilateral." That means that activity was noted in both hemispheres or the whole brain simultaneously.

In education, the notion of compartmentalized learning can result in harmful stereotypes. Everyone has an individual style of learning and thinking. Too often students undermine their own academic abilities by yielding to stereotypes that produce low expectations. For years middle-school girls were regarded as having less math ability than boys. But when experiments placed them in all-female classrooms where they felt secure, the difficulty disappeared and test scores rose. This suggests that their "math anxiety" was based not on lopsided aptitude but on their culture's lopsided attitude. Just as "The Little Engine That Could" repeats the refrain "I think I can, I think I can," research validates the principle that a positive outlook can strengthen performance.

Successful students will extend themselves in a new direction, vary their studying patterns, and challenge themselves with new ideas. They remain open to creativity. Recent neuroscience reveals that the human mind is more flexible than previously thought. In "Inside Higher Ed," "Money Over Mind" (September 23, 2010), Judith Nichols and William Nichols argue that the current education system should value creativity and imagination more. Acts of imagination are "complex thoughts and feelings that allow people to find new ways of thinking. They can transform complicated, even chaotic, experience into narrative, one important way we find and make meaning."

The imagination can lead to new ways of knowing, "not primarily 'data-driven,' but grounded in complex knowledge and direct experience." Imagination, therefore, is a secret weapon available to all of us. It can be unleashed in many ways: by concentration over time or by serendipity. It can be sparked by periods of solitude or the stimulation of group discussion. It yields a sense of discovery that makes learning and studying exciting. We need to challenge ourselves to be creative and use our full abilities. Just imagine!