



## *Brain Rules* by John Medina

### Think you might want to read this book?

John Medina hits a home run in *Brain Rules* as he achieves his goal of reframing work, home, and school based on brain science. He uses the neuroscientific principles of evolution, attention, memory, and the senses to walk the reader through the many ways we could improve our lives and productivity. If you've ever thought things like "lectures should be no more than 10 minutes" or "people learn better on a treadmill"...then this book will confirm those thoughts and explain why they make sense. If you haven't but those ideas are interesting, then this book will offer many others to get you thinking.

### What would Socrates ask?

- What is the proper proportion of video/work/lecture/discussion during a class period/school day?
- How could we better identify positive and negative stress in students and adjust school accordingly?
- What if we embedded an afternoon nap option into the school day?
- What if students were allowed to read/study/work on a treadmill or while walking a track?
- What if schools encouraged students to wear athletic gear each day so more movement could happen while learning?

### Research

- Those with low levels of physical activity were more likely to have poor cognitive performance. Fluid intelligence, the type that requires improvisatory problem-solving skills, was particularly hurt by a sedentary lifestyle. Studies done in other countries have confirmed the finding.
- Ever feel tired about 3 o'clock in the afternoon? That's because your brain really wants to take a nap. You might be more productive if you did: in one study, a 26-minute nap improved NASA pilots' performance by 34 percent.
- A lifetime of exercise can result in a sometimes astonishing elevation in cognitive performance.
- The gold standard appears to be aerobic exercise, 30 minutes at a clip, two or three times a week. Add a strengthening regiment and you get even more cognitive benefit.
- Study after study has shown that children-some as young as 6 months-react to adult arguments physiologically, such as with a faster heart rate and higher blood pressure. Kids of all ages who watch parents constantly fight have more stress hormones in their urine.

- The perfect storm of occupational stress appears to be a combination of two malignant facts: a) a great deal is expected of you and b) you have no control over whether you will perform well.
- Text and oral presentations are not just less efficient than pictures for retaining certain types of information; they are way less efficient. If information is presented orally, people remember about 10 percent, tested 72 hours after exposure. That figure goes up to 65 percent if you add a picture.

### Concepts

- 10 Minute Rule- Modules would last only 10 minutes. Each segment would cover a single core concept - always large, always general, always filled with “gist,” and always explainable in one minute. Each class was 50 minutes, so I could easily burn through five large concepts in a single period. I would use the other 9 minutes in the segment to provide a detailed description of that single general concept.

### Quotes from the author

- We have created high-stress office environments, even though a stressed brain is significantly less productive.
- Our schools are designed so that most real learning has to occur at home. This would be funny if it weren't so harmful.
- Exercisers outperform couch potatoes in long term memory, reasoning, attention, and problem-solving tasks.
- When you understand the brain's rules for memory, you'll see why I want to destroy the notion of homework.
- If you wanted to create an education environment that was directly opposed to what the brain was good at doing, you probably would design something like a classroom.
- The current system is founded on a series of expectations that certain learning goals should be achieved by a certain age. Yet there is no reason to suspect that the brain pays attention to those expectations. Students of the same age show a great deal of intellectual variability.
- All else being equal, it has been known for many years that smaller, more intimate schools create better learning environments than megaplex houses of learning.
- Emotionally charged events persist much longer in our memories and are recalled with greater accuracy than neutral memories.
- To put it bluntly, research shows that we can't multitask. We are biologically incapable of processing attention-rich inputs simultaneously.
- Repeated exposure to information in specifically timed intervals provides the most powerful way to fix memory into the brain.
- Sleep well, think well.
- ...the opening moments of a lecture are cognitive hallowed ground. It is the one time teachers automatically have more student minds paying attention to them. If presentations during that critical time were multisensory, overall retention might increase.

- Professionals everywhere need to know about the incredible inefficiency of text-based information and the incredible effects of images.

**Quotes from others**

- “About 10 to 20 kilometers a day with men and about half that for women.” - Richard Wrangham (regarding how far we walked evolutionarily)
- “If you have only one week to study for a final, and only 10 times when you can hit the subject, it is better to space out the 10 repetitions during the week than to squeeze them all together.” - Dan Schater

**Gateways to further learning**

- [A2i](#)
- [Donald in Mathmagic Land](#)

**Referenced books with the potential to impact leading and learning in education**

Author(s) Last Name	Title
Diamond	<i>Guns, Germs, and Steel</i>

The applicability of this book to education is ....



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