Book Review: Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School by John Medina (2008)

Nancy Falciani-White, Wheaton College

Have you ever wondered why some of your students' eyes seem to glaze over after a few minutes of talking to them about library resources? Or why a teaching strategy that worked brilliantly in one classroom falls flat in another? Is it true that multitasking is really impossible to do successfully? According to *Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School* by John Medina, all of these questions can be answered by understanding how human brains are wired.

Medina, the director of the Brain Center for Applied Learning Research at Seattle Pacific University, introduces twelve "brain rules" designed to explain why people act, think, and learn so differently from one another. While there is much that scientists do not know about the functioning of the brain and how this functioning impacts behavior, this book provides a helpful summary of what is known, and suggests some ways in which that knowledge can be used. The book comes with a bonus DVD which contains some additional material, such as videos of the author discussing his rules, intended to augment the *Brain Rules* experience. In addition, the author has put more in-depth information, including scholarly references, online at http://www.brainrules.net.

So what are the "brain rules" that influence how we behave, learn, relate, and survive at work, at school, or at home?

Rule #1. Exercise boosts brain power.

Rule #2. The human brain evolved, too.

Rule #3. Every brain is wired differently.

Rule #4. Why we don't pay attention to boring things.

Rule #5. Repeat to remember.

Rule #6. Remember to repeat.

Rule #7. Sleep well, think well.

Rule #8. Stressed brains don't learn the same way.

Rule #9. Stimulate more of the senses.

Rule #10. Vision trumps all other senses.

Rule #11. Male and female brains are different.

Rule #12. We are powerful and natural explorers.

Each brain rule is examined extensively, using humor, anecdotes, scenarios and research. The book has a fun writing style that makes the technical and complex neuroscience understandable to anyone who might pick it up, and yet Medina incorporates research into his work according to rigorous criteria: each study must have been published in a peer-reviewed journal and replicated at least once. This helps increase the reader's confidence in the material.

Each chapter contains an "Ideas" section that discusses the implications of that rule for education. To anyone with some familiarity with educational psychology or learning theory, much of what is discussed in *Brain Rules* will be readily acknowledged, and some of it, such as the research on short- and long-term memory, is almost universally accepted. What sets this book apart from most works that examine instructional and learning theory, however, is that it begins to explain *why* the human brain works the way that it does. It provides a fascinating look behind the scenes of some of the popular learning theories. For example, consider this theory from Good and Brophy:

> [c]ognitive theorists recognize that much learning involves associations established through contiguity and repetition. They also acknowledge the importance of reinforcement, although they stress its role in providing feedback about the correctness of responses over its role as a motivator. However, even while accepting such behavioristic concepts, cognitive theorists view learning as involving the acquisition or reorganization of the cognitive structures through which humans process and store information" (1990, p. 187).

Reading in *Brain Rules* that the brain functions sequentially and understanding what is required for someone to move information from working memory into long-term memory (Rule #5) and then recall that knowledge at an appropriate time lends credence to aspects of this theory that may have previously rested on speculation.

While learning about these *whys*, it is easy to find "brain rules" that seem particularly relevant to library instruction. For example, I'm always looking for ways to keep my students' attention. Rule #4,"Why we don't pay attention to boring things," talks about some of the things

that can impact whether or not they will remain focused on my instruction session:

1. *Emotions get our attention*. Emotionally arousing events tend to be better remembered than neutral events. In instruction, this doesn't have to be a dramatic or earth-shaking event – rather, it can simply be a personal example in an engagingly told story, something that might be a little less straightforward but is more relatable to students.
2. *Meaning before details*. Studies show that emotional arousal focuses attention on the "gist" of an experience at the expense of peripheral details.
3. *The brain cannot multitask.* The brain naturally focuses on concepts sequentially, one at a time.
4. *The brain needs a break.* Loss of attention can be caused by relaying too much information, with not enough time devoted to connecting the dots (p. 79-89).

Medina himself implements these suggestions by breaking his lectures into ten-minute sections (ten minutes because research says that attention initially starts to wander after this length of time). He only spends ten minutes on any one concept, and approximately every ten minutes he inserts a "hook," something emotionally engaging and related to the topic being discussed, just enough to get the attention of his students again and "restart" the attention clock. The structure of the class naturally limits the amount of material that can be presented in one class, and Medina focuses on the gist of his content before the details, trying to ensure that his students don't have to multitask to understand where a concept fits into the rest of the session. I am working on implementing this strategy in my instructions sessions; it is proving more challenging than I initially expected it to be, as the structure is quite different than what I am currently using, but it should be beneficial once it is complete.

The brain rules outlined in this book are significant for instructors, and instructors of information literacy particularly, because many of us, especially those who teach one-shot sessions, are at a tremendous disadvantage. We have approximately 60 minutes to impart a wealth of information on a topic students may not think is important from someone they may not care to hear it from. This requires us to be excellent instructors, using every idea and every tool at our disposal to provide our students with instruction that is relevant, well-designed, and interesting. The rules in this book can provide a rationale for the techniques that we implement in our classes, or can serve as a source of ideas that may motivate us to re-evaluate the design of our sessions or the order in which we present material. Many of the recommendations are relatively easy to incorporate into the instruction that we already do, while others, like those surrounding Rule #4, will need to be integrated more deliberately. At the very least, I hope that this book encourages you to think about why you and your students act, listen, focus, and think the way that you do.

Good, T. L. & Brophy, J. E. (1990). *Educational psychology: A realistic approach.* (4th ed.).White Plains, NY: Longman.

Mark your calendars!

Bridging and Beyond:
Developing Librarian Infrastructure