

The new science of learning: How to learn in harmony with your brain

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Neuroscience has lately been called the Fifth Revolution in science. In *The new science of learning: How to learn in harmony with your brain* by Terry Doyle and Todd Zakrajsek, the complicated practice of learning in the era of postmodernity is under discussion. The authors do not seem to think this practice has much to do with education. In fact, the index of this thin volume does not list “education” at all. Terms which are, however, listed there with multiple page references are attention, brain, exercise, (patterns of) learning, memory and sleep. While these topics are not, of course, new to educators, the book is not really written for educators but for learners themselves. In particular, it is written for graduate students, continuing adult learners who were once students, and all children and pupils in general. The book is a sort of eye-opener in identifying facts and circumstances people may somehow know by experience but do not act on. Moreover, the authors claim that by reading this book you become a more effective and efficient learner. The reason they give is that they believe that neuroscientific research has proved that learning is all about understanding how the brain works.

The book consists of nine chapters, the first eight of which give a sort of overview of neuroscientific knowledge about learning. The titles of these chapters range from “A new look at learning” to “Using your senses to learn” to “Paying attention”. Each chapter ends with a summary of key ideas. The following list provides one major key idea from each of the eight chapters:

1. Neuroscience research has also found that to form lasting memories, practice needs to happen over extended periods.
2. Sleep is when the brain clears the hippocampus of unwanted information so that it is ready to learn new information the next day.

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3. All movement is good for learning. Walking to class, sitting on a balance ball instead of a chair, or pedalling a mini stationary bike while studying all help learning.
4. It is likely that the human brain evolved to develop, learn, and operate in multisensory environments. Because multisensory learning gives more than one way to relate to new information, it's an ideal way to learn.
5. The human brain evolved to deal with patterns.
6. Retrieve memory to strengthen it. Each time you recall a memory, rather than just studying it, your brain makes it stronger and more easily recalled in the future.
7. A mindset is a view you have of yourself as a learner, and it affects all the decisions you make about your learning – the effort you put forth, the risks you take, how you deal with failures and criticism, and how much of a challenge you are willing to accept.
8. Attention is absolutely necessary for learning.

While the summaries of key ideas are informative, they do not, however, really justify the subtitle of the book “How to learn in harmony with your brain”. Indeed, we learn something about the brain and learning, but while this knowledge touches lightly on the *how* of learning, the *why* and the *what* of learning are forgotten. Moreover, the book focuses solely on learning in terms of memorising “information” as knowledge in our heads. Much of what we have to learn today does not, in fact, belong into this category of learning objectives. This is the major frustration I have with this book. While it may indeed be helpful for graduate students who have to learn vast amounts of facts, it will be less useful for helping learners learn how to think for themselves. In our time of postmodernity, I’m still waiting for a book with the subtitle “How to learn in harmony with yourself and the world around you”.

In the final chapter of the book under review here, the authors show their faith in “neuroimaging tools that allow [... the] scientist to look inside the human brain and see how it operates” (p. 112). This phrase overestimates the meaning-giving processes scientists use to interpret brain images. Moreover, there is a dualistic idea behind it that the brain is a deterministic entity separated from the person. In postmodern science philosophy this idea has generally been abandoned for some time already. Therefore, I am happy with chapter seven of the book, “Mindsets toward learning”. In this chapter the authors give at least some identity to learners, albeit restricted to two possible mindsets (“fixed” and “growth”). Our times require young people with a strong sense of identity which lets them think about themselves, the world around them and the future of the planet. Though it is necessary to collect information and facts when you are young, the why and what of learning are also important right from the beginning. Education in general and worldwide seems to fail to take care of this kind of *Bildung*.¹ Therefore, while this book may help graduate students to learn, it does not educate them as well.

¹ The German term *Bildung* [education, for want of a more precise translation] refers to more than formal education and is therefore often not translated. It refers to a broad range of knowledge and practical experience, as well as aspects such as being self-taught and well-read etc.

In summary, I would say the book is worth reading despite my criticisms above, but only to gain *some* knowledge about brain processes which may be of interest to you whenever you have to memorise lots of information with hardly any backup of direct practical experience and meaning. The key message of this how-to book is: “The one who does the work does the learning” (p. 63).