Reading to Learn

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For some time now, students in my first-year biology course have been protesting that I'm assigning too much pre-class reading. I use the flipped classroom structure in most of my courses and that means students prepare for class by reading assigned pages in the textbook. To hold students accountable for completing the reading, I administer a two-stage reading quiz before we discuss the content and apply the concepts to problems during class. Those who complain tell me that reading is not part of their learning style and I'm putting them at a disadvantage.

The research on learning styles is inconclusive and contradictory (Pashler, McDaniel, Rohrer, & Bjork, 2008). The theory behind them proposes that students learn best when teaching matches their learning preference, such as visual, auditory, or kinesthetic. The research, however, does not support this theory in very convincing ways.

What the research does suggest is that learning occurs best when the teaching method matches the content and the learning task. Thus, if problem-solving is the skill to be learned, then practicing problem-solving is the best way to learn it. If concepts are what's being learned, then various explanations of the concepts and practice explaining them is the best way to learn them. Learning can be approached in many different ways, and we each have our preferences about how we like to learn. But our preferences do not, indeed should not, prevent us from learning in different ways. If we find it difficult to learn by listening to a lecture, that does not mean we must live with poor listening skills. It means we need more practice at listening for meaning when we find the content challenging. If we have difficulties understanding the written material that appears in texts, that does not prevent us from becoming more skillful readers of text. It means we need a better understanding of the skills involved in reading textbook material and repeated practice in applying those skills.

What troubles me about learning styles is that they promote a fixed mindset and that evolves into a perceived learning disability where none exists. Certainly, learning disabilities are real and experienced by some students, but many of my students conflate having a particular learning style with the inability to learn any other mode. They treat their difficulty with learning from texts as an incurable problem and ask to be excused from ever having to do it. I can't think of any profession where people are excused from reading. Rather, poor reading comprehension comes with consequences.

Learning involves what Carol Dweck calls a growth mindset (Dweck, 2016). The growth mindset is held by learners who understand that their abilities, skills, and intellect can be developed. Those who believe that their ability to learn is natural—determined at birth, innate and unchangeable—

have a fixed mindset. Rather than using one of the many learning style inventories to identify a fixed, unchanging learning style, we should be using these inventories to introduce students to a range of different approaches that can help them learn. Identification of a learning style should also be used to target those other learning modes students need to develop and strengthen. Good learners don't rely on just one approach to learning. They consider the task and then determine the best way to learn it.

Encouraging or allowing students to avoid reading because it's not part of their learning style does them a disservice. Reading is a skill that benefits all learners. It's well-known that widely-read people have a headstart on non-readers: the well-read have in their minds a myriad of experiences, facts, and concepts that they can integrate with the new material. This is what Brown, Roediger III & McDaniel write in *Make it Stick*. Deep learning occurs when we are able to integrate what we are learning with our existing mental models of our world. We need to be able to integrate what we know with what we are learning. Sometimes that requires a rethinking or restructuring of our mental models if what we are learning reveals a misconception that needs correcting. But for learning to stick and stay with us, it must be integrated with our understanding of how our world works.

Students who read widely are better prepared for learning because they are developing the skills needed to read different kinds of texts. Reading a novel is different from reading a textbook, as college and university students quickly learn. Inexperienced readers of textbooks do find them difficult. That's to be expected. Textbooks require reading for information and understanding rather than for pleasure.

Moreover, reading does not simply deliver information, it actually rewires our brain. As Maryanne Wolf writes in *Proust and the Squid*, reading deeply by considering the ambiguities in a text produces changes in the synapses of the neural network in our brain (Wolf, 2008). Those changes enable the brain to better integrate what we are learning with what we have previously read. The well-read student has a richer memory from which to draw when trying to integrate new learning and understanding.

College and university students who arrive without much experience reading (be it texts, newspapers, magazines, or books) are at a disadvantage. Indeed, Nicholas Carr has raised concerns about web-based reading. He believes it may be rewiring our brains for shallow thinking. Internet text is so full of distractions, especially when compared with books (Carr, 2010). Patrick Sullivan penned an open letter to high school students in which he raises similar concerns about how much and what students are reading. He worries that much of what students read is superficial. His best advice to those aspiring to earn a university degree: read often and widely. That's the best way to achieve academic success (Sullivan, 2016).

As educators it is incumbent on us to develop our students' intellectual abilities. One of the best ways to do this is by encouraging students to read and nurturing their efforts to do so. I have been trying to do this in my flipped classroom by providing reading guides that accompany students' reading assignments. Some chapters in the books I use provide interesting material, but it isn't

content that's essential to know when students are first learning about my field. I note these in the reading guide as sections that students can skip. In addition, many students new to post-secondary studies don't know how to read difficult text in an engaged, attentive manner. And many post-secondary texts are difficult. They discuss complex concepts, present new ideas, and make arguments. To help students understand text material, I often include questions in the guides which I encourage students to ask themselves while reading through the assignment. The number of questions and the explicitness of the questions lessens in more senior courses. I design my reading guides from a developmental perspective; assuming that beginning students need more reading guidance than seniors.

So, please don't back down when students complain about how much you are asking them to read. Encourage your students to do the reading. Embed reading in every course. Provide scaffolding materials to help them get through the more onerous pieces. Let tough reading material show them that learning is difficult but rewarding work. Reading is just like every other skill; it develops with practice and teachers are well-positioned to give students those fruitful opportunities to practice.

Resources

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