That's Not My Style: Myths about Learning and Teaching

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The notion of "Learning styles" seems to be very popular these days in education. The idea that we all learn differently is intuitively appealing with the varied personalities, successes, and struggles of our students. However, the notion that each person learns differently is likely a myth (Olson, 2006; Feldon, 2005; Willingham, 2005). Students don't possess different learning styles; rather every student has unique prior knowledge, experiences, and developmental levels.

To understand the similarities regarding how people learn, we must consider the biological nature of learning. Human beings, in a physiological sense, are not very different. If learning is a chemical/ physiological process occurring in the brain, one would not expect vastly different biological/chemical processes to be responsible for learning in each individual. Why should we think one person's brain works fundamentally differently than another? We do not think this about other organs.

Catering to students' supposed learning style might actually hinder student learning. When students receive instruction within their "style" of choice, they often perform more poorly on assessments (Salomon, 1984). The explanation for this discrepancy is that students exert less mental effort on tasks they prefer due to perception of ease. Therefore, the students are not as actively mentally engaged in the learning activities; they don't put in the mental effort required to learn new material.

Even more problematic is when students attribute their success or failure to their "learning style". I have had student tell me they can't learn by reading something because they are "kinesthetic learners". A few students have even said they don't like laboratory investigations because their style of learning is to read information out of books. What these students really mean is they prefer to acquire information in a particular way. Yet, the manner in which students prefer to acquire information may have little to do with how well they come to understand the intended ideas. How people learn is fundamentally the same. It is a mentally active process whereby prior experiences and ideas are used to make sense of new incoming information.

Instead of focusing on students' "learning styles" we should focus on what representation best suits the content being learned (Olson, 2006; Willingham, 2005). What kind of instruction will best encourage students to deeply understand a particular learning goal? Instead of thinking some students are "hands-on" learners while others are not, we must realize that all students will benefit from concrete representations of concepts. If I want to teach students about changing the oil in a car, having some read about it, others do it, and still others act it out is, I'm sorry to say, ridiculous. All of the students will benefit from holding a wrench and checking the final levels. This example does not mean we should teach only using concrete experiences. Teachers must consistently scaffold their students' thinking back and forth between concrete and abstract. By starting with concrete examples, teachers can have students continually link difficult abstract ideas to their concrete experiences.

As another example, in teaching about opposing muscle groups in a biology class, actually having students lift weights and noting that when the biceps flex, the triceps relax and vice versa (kinesthetic approach) makes much sense. It does so because this mode of instruction is appropriately matched with the content being taught, not because some learners profess to be kinesthetic learners.

As a final example, when teaching students about the complexities of how science works, or the nature of science, use of historical stories is widely promoted (Clough, 2006; Abd-El-Khalick, 1999, Stinner et. al., 2003). Yet, these stories can be more powerful when teachers encourage reflection on students' own experiences investigating the natural world and how the short story is similar to or different from those experiences. Importantly, authentic experience is not enough. If teachers only have students carry out investigations of the natural world without ever encouraging them to make connections to real science and real scientists, student learning of how science works will not be as deep. Both experiential (concrete) and story-based (abstract) learning *together* encourage deeper learning for all students.

The notion that students do not have individual "learning styles" may be difficult for some teachers to hear. I know some will ask, "Are we not all individuals?" While much is gained from understanding the fundamental commonality regarding how *all* people learn, I do not want to promote a

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"one size fits all" approach to teaching. I see each student in my classroom as a unique individual because of their diverse backgrounds, varied experiences and differing developmental levels. Understanding these genuine differences, understanding how they are the lens through which students view new experiences, and then creating appropriate learning tasks is the great challenge for all teachers. In the next issue I will discuss more thoroughly how learning theory (as opposed to learning "style") more completely explains learning and can better inform our practice.

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