Book Review

How Humans Learn: The Science and Stories Behind
Effective College Teaching

By Joshua R. Eyler

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Joshua Eyler's *How Humans Learn: The Science and Stories behind Effective College Teaching* focuses on how emerging learning science research can be operationalized to improve student learning in college classrooms. Eyler uses learning science research to describe how human learning works, which he illustrates with examples of instructional choices that prioritize deep and lasting learning. From there, he extrapolates this research into specific and actionable changes instructors can make to their courses in order to prioritize student learning more effectively.

Learning is, for Eyler, the result of innate curiosity. This orientation is prominent amongst children, who "seek to know about the world not because they want to, but because they *have* to … their survival depends on it" (p. 30). However, this innate curiosity diminishes with age, in part because of a child's exposure to exposition and direct instruction. Because learning arises from curiosity, Eyler argues that a good teacher is less a content purveyor and more one who helps "students learn how to maximize [their] ability to use questions to learn" and then "get[s] out of their way" (p. 36). As a result, course design to promote learning requires specific pedagogical moves. First, Eyler points out the fact that anxiety debilitates curiosity. Given the novelty of a college classroom (new content, perspectives, format), the first way that instructors can help students maintain

curiosity is to avoid being intimidating themselves. Second, instructors can intentionally incorporate student inquiry and discussion into their instructional design.

In the second chapter, Eyler points out that "the social world is *always* a part of the classroom, [and] that classrooms themselves are social spaces" (p. 66). Because humans are a social species, learning is therefore a social process. Of course, sociality has long been understood as an essential part of learning, and so Eyler summarizes the work of Maria Montessori, Albert Bandura, and Lev Vygotsky, concluding that effective classrooms must prioritize certain types of social relationships because learning is not primarily an individual project. Extrapolating from the social context of learning, Eyler identifies three central characteristics of a social classroom: "a sense of belonging, a classroom management philosophy that privileges community building, and an instructor who effectively models intellectual approaches" (p. 83). The impacts of each characteristic are explored through a survey of research literature. These principles of social learning are operationalized in specific methods of discussion (those that allow students to create knowledge for themselves), collaborative learning (tasks that require collaboration rather than easily divisible projects, peer instruction (founded in Problem-Based Learning), and the instructional use of stories and games. Each of these instructional methods is described in detail and exemplified.

The third chapter, "Emotion," explains the close connection between thinking and feeling, which directly contradicts the customary division of the brain into cognitive and affective regions. Eyler asserts instead that "emotions act as a kind of 'rudder' for cognition" (p. 121). The implication is that both positive and negative emotional stimuli affect cognition and that cognition affects emotion. Therefore, a classroom is not a sterile environment where only intellectual work happens. Rather, emotion plays a vital role in learning. In the first place, emotional connection increases value students perceive in information, and thereby increases learning. Eyler, relying on Nel Nodding's notions of the ethics of care, focuses much of the chapter on the way that instructor care for students contributes to learning, and describes the effects of negative emotions on learning.

The fourth chapter is based on the observation that "we learn things much better when they're real" (p. 152). An authentic learning experience is one that has as much

fidelity as possible to the experiences that students will have outside of school. Further, students recognize artificial assignments easily, and artificiality promotes "weaker, or more strategic, learning behaviors" (p. 153). Artificiality can be moderated by creating "courses, assignments, and activities that … allow students to do significant work within the domain of a particular discipline" (p. 154). Authentic work requires deep engagement and treating students as "burgeoning scholars, rather than novice thinkers" (p. 155). This method, in turn, requires contextual, messy, and ambiguous instruction, and it prioritizes student engagement in authentic and challenging tasks. This learning method is highly experiential and based in David Kolb's experiential learning model, which Eyler discusses at length. Therefore, Eyler advocates inviting students to examine the fundamental problems identified in the discipline using the same methods used by scholars in the field, rather than transmitting to students the results of other scholarship.

The final chapter engages the discontinuity between an educational system that stigmatizes and punishes failure and the reality that learning is in some senses enabled by failure. By contrast, Eyler advocates instructional design that "provide[s] students with opportunities to fail when the stakes are low and then gives them the support and guidance to gain understanding from these instances" (p. 173). Recent research into the role of probability in brain function is marshalled to support this instructional direction, as is research on learning from failure. Particular focus is given to failure in college (pp. 180-196), which is essential reading for those interested in understanding the student experience in college. In the end, Eyler demonstrates that failure can be productive and a crucial learning tool.

Eyler's *How Humans Learn* is an essential read for anyone interested in student success. Although attaining success in college is complicated, understanding the variables and barriers that affect student success is important work. Eyler focuses on instructional practices that promote lasting learning for individual students. His summary of research is clear and approachable, the illustrations of best instructional practice he provides are compelling and inspirational, and the suggestions he makes for class improvement are forward looking. Learning is, after all, a primary goal for a student's experience in college.