

“Teaching and learning” are often mentioned hand-in-hand throughout academia. Most people have intuitive senses of what teaching actually is, probably based primarily on their experience as students in formal educational institutions. Learning, however, is a somewhat more elusive concept. While most would agree that learning entails the acquisition of new knowledge, skills, or experiences, how this happens, or what happens externally to effect learning internally is an issue of some debate. Several prevailing learning theories have emerged and “stuck” to some extent, but there isn’t yet a unified and widely accepted single theory. It’s my opinion, and seemingly the opinion of many, that there are elements of several of the prevailing theories that point toward the truth, and that these are simply the best theories that we have, so far, to explain learning.

Behaviorism is a theory that aims to describe behavior generally, not simply learning, and is based on the idea that all behaviors are conditioned. Like Pavlov’s infamous dog, behavior is learned through positive and negative reinforcement. John B. Watson, the psychologist originator of behaviorist theory, made no distinction between animals and humans, stating in the first paragraph of his article “Psychology as the Behaviorist Views It,” “The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute.” It is unsurprising, then, that the theory can sound to many modern audiences a bit brutish. While there is no doubt that behaviorist strategies can *work* to cause base and simplistic behavior change, it’s less clear how they can be used effectively to inspire learning of sophisticated topics, appreciation for learning, or strategies for independent lifelong learning. Positive and negative reinforcement are effective in “teaching” students to do what we want them to do, but I don’t believe that they are broadly effective in inspiring creativity, passion, and curiosity. A teacher in survival mode with an overcrowded and poorly behaved classroom might reasonably rely on simplistic behaviorist strategies in order to bring the students to a place in which they might be more able to learn, but I don’t believe that teachers should normally rely heavily on simple positive or negative reinforcement. If students are “learning” because they will get a cookie at the end of the lesson, or because they are afraid of losing their recess time, they fail to develop self-motivation or appreciation of the material. It’s my belief that when prizes or consequences are removed, intrinsic motivation will not naturally fill the void. If we find that it’s “the only way the kids will pay attention,” perhaps it’s time to reevaluate the content or pedagogy with which we’re trying to teach.

Largely as a response to behaviorism’s lack of recognition of the processes and life of the mind, **cognitivism** emerged as a more nuanced theory to describe and explain learning. It depends fundamentally on the idea of mental schemas, which are regularly updated and changed as new information and experiences shape our understanding of the world. Once new schemas have evolved with understanding, knowledge and skills are retained and become accessible for recall. Learning, according to the cognitivist, happens most naturally when new information can be related to previously understood ideas or concepts, for which the mind already has a schema in place. Due to the active role of the mind in this theory, cognitivism requires that the learner plays an active role in their learning. In my experience, this is the *key* metacognitive understanding that students need to develop in order to be productive learners. Immature

students seem to imagine that by simply existing in the presence of teaching, that they are learning whatever it is that is being taught. This idea can be exacerbated if some students in a class have developed the ability to retain information by careful listening. Other students might observe the attentive students “just sitting there,” and imagine that he/she is in fact doing everything that they need to by sitting and (sometimes) listening. This “learning by osmosis” strategy is not a promising one, and until students learn to see their intention and attention as the linchpins between teaching and learning, it can be easy to fall behind.

Constructivism is a theory conceptualized and shaped by Jean Piaget and Lev Vygotsky in the early- to mid-twentieth century that aims to explain the ways that a learner constructs knowledge. It focuses on the individual, and how their experiences shape their reality, rather than focusing on a teacher or outside stimulus. Play, exploration, and investigation are some of the ways in which an individual can come to new discoveries and understandings on their own. Constructivists would argue that knowledge is more meaningfully gained through self-motivated discovery, and that teachers might be more effective if they can develop “guide on the side” strategies instead of more traditional “sage on the stage” pedagogy. Jerome Bruner expanded on Vygotsky’s work to explain that a system of scaffolding can be helpful for teaching complex ideas that students might not be capable of discovering completely autonomously. If a teacher provides just enough structure, learners can construct enough knowledge to allow them to progress to a closer understanding. As the learner works their way toward a complex idea, lower levels of the scaffolding can be removed, and they can continue to work themselves upward. It is clear to me in my practice that self-driven learning feels easier and more natural for a student. In my experience, allowing students time and space to discover for themselves is likely to increase motivation, as there’s less authoritarian pressure to do a certain thing a certain way. That being said, I have also experienced situations in which students have learned to succeed in a more rigid academic environment, and struggle to adapt to looser demands. As a teacher, it can be challenging to find the proper scaffolding balance, allowing for real discovery while supporting students with different experiences and abilities. It is *not* fruitful to throw students into the deep end and trust that they’ll learn to swim. While most may make it out of the pool, it’s unlikely that they will learn to be excellent swimmers, or that you will have fostered positive feelings toward swimming.

As the available knowledge of the world has moved from books, libraries, and universities to widely and nearly instantly accessible online sources, new ideas have emerged about learning and knowledge. Notably, **connectivism** is a theory put forward by Siemens and Downes that reimagines learning for the digital age. It prioritizes access and connectivity to networks of knowledge above individual internal human knowledge. Connectivists claim that information and knowledge is changing so quickly, that it may actually be a detriment to the individual to claim to *know* much of anything. While I don’t subscribe to this idea as a theory of *learning*, I do believe that it’s increasingly critical to teach our students how to reliably and quickly take advantage of networks of information in order to be productive and adaptable citizens. Piaget believed in the importance of *assimilation* and *accommodation* of new information in order to construct knowledge. In a connected and quickly changing world, I believe that developing skills for

quickly determining what information is applicable to the problem at hand, and for quickly assimilating or accommodating new information is particularly important. While academia might have historically been a place in search of The Truth, I think we need to be preparing our students to be comfortable in a place of uncertainty. Critical thinking is crucial in order to separate valuable and reliable information from “fake news,” but intellectual agility will also be important to remaining relevant in our world.

As a teacher, I try to stay away from behaviorist techniques, I try to utilize cognitivist ideas in order to convince students of the importance of engagement, and I aim to build lessons that take advantage of carefully scaffolded constructivist activities. From a broader curricular standpoint, I do find myself influenced by connectivist ideas when I start to analyze what the content of our courses is and more importantly, why. I certainly acknowledge that every course in a thoughtful school is trying to teach a combination of content, skills, habits, morals, and ethics, but I wonder whether the content, which is often of the stated focus of a class, is as important as it once was. In a connected and quickly changing world, what is the critical *content* that really *should* be stashed away inside our brains? My instinct is that if we reevaluated what belongs in a core curriculum, we would likely find that some of what has traditionally been important is no longer necessary to have in our brains, since it’s so easily accessible digitally.

One easy rebuttal to my own question of the importance of particular content is that I believe that creativity is the ability to pull together seemingly disparate experiences and knowledge in new and inventive ways. Therefore without expansive knowledge, there’s no meaningful creativity. Very young children are often thought of as being creative, but I think that they’re simply uninhibited. By meaningful creativity, I mean solving a problem in an innovative or ingenious way or creating something beautiful and intentionally meaningful. I believe that meaningful creativity is “taught” by expanding experiences and knowledge, and fostering creative confidence.

Perhaps I would envision a greater balance between core subjects and open-ended and interest-based passion projects, in which students would learn to navigate the real and virtual worlds in order to find the information and communities that can move them closer to solutions to their problems or answers to their questions. It is only through my own learning about learning that I have begun to imagine more creative or innovative methods of teaching and schooling that I might explore. I look forward to my continued exploration, learning, experimentation, and discovery.