The Adult Learner Part 2: Where the Mark is Moving

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Last month we explored the arguments for and against adult learning theory. We began with medical educators’ attraction to the subject, evaluated the philosophical and psychological concepts behind it, and concluded that it is unlikely that there is a difference in how adults and children learn, making learning theories specific to adults unproductive for learner and educator alike. In this article we will evaluate the alternatives that are most popular and best supported in cognitive and educational psychology, and that have early support in medical education literature.

History of Learning Theories

Briefly, current learning theories stem from two fundamental approaches to understanding learning: 1) rationalism, in which we eventually see classical cognitive science and “the human as a computing machine” mindset, and 2) empiricism, born from observations of social interactions. Today the most commonly accepted theories borrow from each other, and the fundamental concept is that all senses and all interactions — with people, books, locations, etc. — contribute to learning.

Currently Most Popular Theories

Situated cognition became popular at the turn of the millennium and is composed of three theses. 1) Embodiment: cognition depends on both brain and body. 2) Embedding: cognition utilizes structures in the natural and social environment. 3) Extension: cognitive boundaries extend past individuals (i.e., society shares knowledge and builds on that individually). What this means with respect to how we learn and teach is that there is more to be gained from environmental and social interactions (e.g., being in the ED or a simulation experience) than reading a textbook that lacks greater environmental and social stimuli.

That is not to say that reading or hearing information is not helpful, but rather that information in the more restrictive settings will be learned in the context of previously experienced environmental and social interactions. For example, you can read about an elephant, but until you see one personally or in a picture the text is much less meaningful. Gibson’s theory of perception and complexity theory are similar but less encompassing theories that have been previously applied specifically to medical education.

Activity theory and sociocultural theory are similar to situated cognition, but are earlier theories and place greater emphasis on the emergence of knowledge from interactions with the environment, most notably the cultural symbols in those interactions that create shared meaning. For example, a medical student may learn that seeing new patients quickly is important in the ED by observing attending physicians and hearing them talk about getting a patient’s name “out of the red column.” This theory speaks more to the cultural phenomena that create learning and is important in our increasingly diverse medical education settings. Patient priorities, physician priorities, and hospital priorities all stem from different cultures and affect what is taught, learned, and practiced. This is “the stuff you can’t learn from a textbook” that many physicians learn during residency, and is no less important than the latest sepsis guideline or other clinical rule. Other theories with similar concepts that have been applied to medical education are communities of practice and distributed cognition.

The last of the learning theories I want to share are of the behaviorist-associationist family, and include behaviorism (Pavlov’s famous dog) and social learning theory (not to be confused with the aforementioned “socio-cultural learning theory”). The underpinning to both is the importance of external influences on behavior, whether by positive and negative stimuli or by observational learning. Although lay-people often see behaviorism as a thing of the past, it is a theory that still contributes to the understanding of how we learn.

Instructional Theories

Learning and teaching are inherently related but not equivalent, and instructional theories differ from learning theories in their endpoints. An instructional theory gaining popularity that deserves special mention is cognitive apprenticeship, which began in the late 1980s and has been used in medical education since the turn of the millennium. It provides a framework for understanding the complex teaching involved in role-modeling, background instruction, and supervised experience. It is thus well suited to describing clerkship and residency instruction. Stalmeijer and Bleakley provide compelling descriptions of this theory.

In the 1980s David Kolb introduced experiential learning as a learning theory, but I characterize it here as an instructional theory, because if we accept the aforementioned learning theories’ assertions that learning is a reflection of mind-body experience, then “experiential learning” is redundant. Experiencing is learning. For example, if you experience a bad outcome with a medication, you have now learned one negative effect of that medication. Experiential learning still provides insights into instruction, however, and its four-stage cyclical model that includes 1) an experience, 2) reflective observation, 3) abstract conceptualization, and 4) active experimentation informs curriculum design.

Conclusions

Many additional theories and concepts have been posited that were not described here. The aforementioned theories (situated cognition, sociocultural learning theory, activity theory, behaviorism, social learning theory, cognitive apprenticeship, and experiential learning) can improve our understanding of how humans learn and how we teach. The most important thing to remember from this brief review is that learning and teaching are understood with a combination of theories and concepts, each of which may improve our abilities as lifelong learners and teachers.

Continued on next page
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