How We Learn

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People say that what we're all seeking is a meaning for life. I don't think that's what we're really seeking. I think that what we're seeking is an experience of being alive, so that our life experiences on the purely physical plane will have resonances within our own innermost being and reality, so that we actually feel the rapture of being alive.
– Joseph Campbell, *The Power of Myth*

Learning is a complex process requiring intrinsic motivation on the part of the learner before any progress can be appreciated. It cannot be packaged and mass produced since each individual learns in a unique fashion. Some would argue this point, most notably the behaviorists, while the constructivists would be in agreement. What the behaviorists measure is rote demonstration of skills, while the constructivists are measuring the true, complex processes which incorporate analysis, synthesis, and evaluation.

Behaviorism is most commonly associated with Pavlov's experiments with his dogs. He initially identified the central nervous system's dominant role in the regulation of the digestive system. During this investigation, he experimented with the salivary glands of dogs and was able to illustrate a link between their responses and stimuli. This illustrated "that a conditioned reflex should be regarded as an elementary psychological phenomenon, which at the same time is a physiological one" (Nobelprize.org, 2006). Another behaviorist, Edwin Guthrie felt ""A stimulus that is followed by a particular response will, upon its recurrence, tend to be followed by the same response again" (Abbott, 2003). J.E. Ormrod lists the definition for behaviorism as: "Learning is a relatively permanent change in behavior due to experience. This refers to a change in behavior, an external change that we can observe" (1999). Therefore, behaviorism is linked to observable, external actions, not internal mental processes.

Constructivism is based on knowledge being formed by an individual through his/her interactions with his/her environment. If we believe that learners actively build knowledge in their attempts to make sense of their world, then learning will likely emphasize the development of meaning and understanding. Constructivists generally claim that knowledge is discovered and that the ideas teachers teach do not correspond to an objective reality. Lev Vygotsky describes a scaffolding theory whereby a learner needs more support during learning stages, but as he/she progresses, they are able to move to more difficult tasks without assistance, thus developing new knowledge through interaction, not repetition (Galloway, 2001). One of the first constructivists, Giambatista Vico, stated in regards to learning, "one only knows something if one can explain it" (Yager, 1991). The current models of teaching that emphasize teaching standardized testing content emphasize:

> the learning of answers more than the exploration of questions, memory at the expense of critical thought, bits and pieces of information instead of understanding in context, recitation over argument, reading in lieu of doing. They fail to encourage students to work together, to share ideas and information freely with each other … to extend their intellectual capabilities. (American Association for the Advancement of Science, 1990)

A better system would involve approaching learning from a student centered perspective where knowledge can be discovered by individuals on their timetable, and not on that of the teacher. A better system needs to involve a scaffolding hierarchy used to attain higher levels of abstraction that a learner can voluntarily and coherently explain.

Since it is inappropriate to expect all learners to be mature enough to direct their own education, there is still a very important responsibility for the teacher. Teachers should be responsible for guiding students to develop self centered needs or goals for learning. Viktor

Frankl stated with regard to the survival mentality of concentration camp prisoners, “What man actually needs is not a tensionless state but rather the striving and struggling for a worthwhile goal, a freely chosen task” (1984, p. 110). This survival mentality can be associated with any kind of task or goal, in that learning cannot take place without self-made purposes (Hanley, 1994). In a constructivist modeled classroom,

> Teachers assist the students in developing new insights and connecting them with their previous learning. Ideas are presented holistically as broad concepts and then broken down into parts. The activities are student centered and students are encouraged to ask their own questions, carry out their own experiments, make their own analogies and come to their own conclusions. (Hanley, 1994)

Ownership of learning is tantamount to establishing a path of learning that incorporates analysis, synthesis, and evaluation. “Everyone’s task is as unique as is his specific opportunity to implement it” (Frankl, p. 113). Opportunities cannot result in personal insight if a learner can only apply previous learned behavior.

Learners will need different amounts of guidance at different developmental ages. Piaget delineates the stages as sensorimotor, preoperational, concrete operations and formal operations. Each stage corresponds to a mental capacity to develop interactively. At the sensorimotor stage, infants to the age of approximately 2 years old are only able to form mental concepts of objects within their immediate view and therefore, intelligence is limited to developing through their existing environment. Preoperational children are typically two to six or seven years old and they have genuine thought patterns emerging. They can conceptualize unseen objects, but are not capable of deductive reasoning. Children in the following concrete operation stage are up to eleven or twelve years old and are ready to use deductive reasoning and see things from a

viewpoint other than their own. The formal operations stage is the last step in Piaget's theory of thought progression and is unique in that learners after the age of eleven or twelve are now able to think abstractly (Plucker, 2004). Applying this to, for example, high school students, would show them as being capable of seeing things from their own viewpoint and using their abstract thinking capabilities to expand on that knowledge, but still needing guidance to develop their own identities and goals (Hartmann, 1996).

Since learners have different mental thresholds determined by age and development, it is imperative that learning taxonomies be acknowledged and used for guidance. It would be unrealistic to expect a seven year old to use abstract ideas to create new ideas, since they are incapable of deductive reasoning and transferring an attribute from one area into another or synthesizing abstract material. Bloom's Taxonomy splits competency levels into six skill groups; knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1984). While it would be fair to expect recall and grasping meaning from preoperational children, it would not be expected that they all would be able to apply that knowledge to an unknown external set of information or situation.

Students need to be at the right developmental stage to handle material, and then use those skills with an internal goal, and move through the levels of abstraction exhibited by Bloom's Taxonomy. Since this learning is intrinsic, and not an external act that can be measured, behaviorism cannot be a true method to attaining development beyond what can been seen. Experiential, or knowledge "constructed by the individual through his interactions with his environment" (Murphy, 1997) is the type of learning that will allow students to adapt without resistance, or construct their own learning path. The complex process called learning is unique to

each learner and constructivists allow learners to grow with and through their individual interactions within their environments.

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