

## Mind and Brain

The *How People Learn* chapter on *Mind and Brain* was a nice refresher on neural networks and how they work. Subjects like this are really interesting, and it is amazing how far the science has come in the last couple of decades. What I learned, that I didn't know before, is the theories concerning the overproduction and pruning, and then later on, adding of synapses in the brain. That whole bit about how infants who are born with visual abnormalities completely losing their neural pathways for sight pertaining to a particular eye and then never being able to have use of the eye regardless of the surgical procedures applied was quite fascinating. In fact, I would have thought that it would be the case with most any visual impairment. However, when you think about it, people who get cataracts or other visual impairments later in life are often able to have the problem corrected. The timing of the synapses overproduction process really explains this phenomenon well. The same is true regarding the ability of infants to learn language. I see this as being genetically influenced, but the authors also make a good case for the fact that so much of our synaptic production is environmentally influenced. I'm not one who argues that it is one or the other, genetics or social influences. I've pretty much always felt it was a combination of both. Genetically speaking one of the things that my wife and I have noticed is that the temperament of our foals seems to be strongly influenced by the sire. We have bred our mares to two different stallions, Taxi and Sliver. So far, every foal that has been sired by Taxi has been high strung and flighty, whereas all of Sliver's foals have been, calm and very friendly. I realize this is not an empirical study and that it is only observational, but I think it does imply that genetics are influencing the temperament of our babies.

I thought the chapter on *Adult Development* in *Learning in Adulthood* was also quite interesting, especially the four approaches to adult development; most specifically the part on biological development and the three theories of why primary aging occurs. I had never heard those theories before, but each one seems as if it could be valid. Normal metabolism of oxygen causing cellular damage seems plausible, as does the cell's lessening ability to repair daily breaks in DNA strands, but I'm leaning towards daily caloric intake as being the most influential culprit when it comes to aging. I saw a study reported on the Discovery Channel about researchers who have studied Indians, we're talking middle easterners here not Native Americans. Indians apparently have the highest mortality rate in the world and researchers believe it has something to do with their diet, specifically their relatively smaller amounts of caloric intake daily. Partly they believe that the brain is forced into a survival mode which, in the long term, keeps the body healthier and increase longevity of the organs and critical life support systems.

The chapter on *Cognitive Development in Adulthood* was also very enlightening. I was not familiar with Piaget's work, most of the cognitive research I've read has been on

work done by Richard E. Mayer. I think that the neo-Piagetian scholars' theory on postformal thought has a lot of validity; I'm guessing this is where the metacognitive aspects of cognitivism come from. I also agree with Perry when he says that the "context of knowledge is as important as the knowledge itself." Perry's positions and transitions between them also makes a lot of sense, at least these are things that I see occurring in my own life.

One final thought on this week's reading, I gave my wife the "sweet" list test at the bottom of page 124 in *How People Learn*. I read her the list of words and then began asking her if a particular word was in the list I just read to her or not, low and behold she said "sweet" was in the list, thus illustrating that the active brain does indeed remember things that haven't actually happened. I'll have to remind her of this the next time she is emphatic in claiming that I did something that I really didn't do.