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**Memories Part II Learning:
The Gift of Remembering and of Being Remembered
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Rene Descartes, the French philosopher said, “*Je pense donc je suis,*” which means “I think therefore I am.” The Latin phrase which means the same thing is “*Cogito, ergo sum.*” I learned both of these phrases in a philosophy class as an eighteen year old sophomore in college. Yet, my experience is somewhat different. I would state the issue, “I remember therefore I am.” And, its corollary would be, “I am remembered, therefore I was.”

It is in visiting my father’s gravesite that I offer the one tangible gift I can give my father since his death; I give him the gift of remembering. I am saddened, however, to realize that the day will come when no one will visit his grave. I will bequeath to my grandchildren (five girls and three boys) the gift of visiting my father’s grave with the hope that they will give the same gift to their grandchildren.

As we continue to think about learning, it is clear to me that the greatest treasure of the ability to learn is the capacity to remember. The June 13, 2008 trip to Louisiana with my son and grandson provoked my thoughts about learning and memory. As I walked through a World War II aircraft hanger with my son and grandson, I heard the whispers of my father, then 21 years old, serving as Fire Chief at the Esler Field military air station. In the only picture which I have of that service, my father is the first person on the left in the front row of 23 men and 1 woman. He is playing with a kitten.



As I enlarge the picture to look at the detail before the image becomes grainy from being too large, I notice that he alone is wearing a tie. This is significant because only a few miles from Esler Field, and only two years before, my father had his first date with my mother. They attended services at Kingsville Baptist Church. My father was without a tie and without laces in his shoes. When my future mother asked where both were, my father said that they were in his pocket. An appropriate place it seemed to him for ties and shoelaces. In this picture His sleeves are rolled up. He is a handsome young man with an intensity in his eyes and face which partially explains why the youngest of the 24 was the leader of the whole group.

As I study this picture, briefly tears come to my eyes. How can I help my grandchildren to know this grand man, who still defines who I am? What more can I know of him; what new memories can I create by examining this picture? Remembering requires learning, but how do we learn?

The Biology Behind Learning

When babies are born, their brains are made up of billions of neurons (nerve cells that carry messages to and from the brain to other parts of the body). Over time connections, called synapses, form among the neurons that are vital to proper brain functioning; these

synapses help individuals make mental connections between different areas of the brain and between different information so that they may learn and develop to their fullest mental abilities. What drives the establishment of these synapses is stimulation, particularly during infancy and early childhood. Stimulation can be anything from color, to light, sound, or touch; anything that captures the child's attention and makes him or her think. When stimulation occurs, synapses are built and strengthened. Without stimulation or even reinforced stimulation, key synapses either will not form at all or will wither away. While things such as intelligence and creativity may be partially determined by heredity, these connections are what determine maximum development.

What Helps Learning and What Hinders It

Stimulation, then, appears to hold an important key to making certain that people are able to realize their cognitive potential. Because the most important connections are made before the age of ten, it is important for a child to receive proper stimulation. There are several things that hold the key to optimizing learning and mental development for a child. They include:

1. A nurturing, secure environment that provides emotional caring and safety.
2. A sense of predictability so that a child develops a sense of emotional stability.
3. Conversation and communication; the spoken word boosts brain-power.
4. Encouragement and praise with regard to a child's accomplishments, however minor, to provide a sense of empowerment.
5. Helping children make cognitive connections by pointing them out (point out the car in the picture and then take the child for a ride in the car).
6. Knowing when a child has had enough stimulation and needs some quiet time.

Mental disorders such as attention-deficit disorder and learning disabilities can hinder learning. However, certain environmental factors and conditions can also hurt a child's ability to learn. A neglectful home environment in which stimulation is absent can spell the beginning of future learning problems for any child. Particularly stressful events, such as the death of a parent, or a stressful situation, such as homelessness, can also have adverse affects on a child's ability to concentrate on and respond to mental stimulation.

Kinds Of Learning

Classical Conditioning.

Formulated by Russian physiologist Ivan Pavlov (1849–1936), classical conditioning involves an automatic response to a certain stimulus that is acquired and reinforced through association. Pavlov illustrated the principles of classical conditioning after training dogs to salivate (involuntarily) upon hearing the ringing of a bell. Pavlov accomplished this task by first ringing a bell just before he fed the dogs. After a while, the dogs began to associate the ringing of the bell with getting their dinner. However, the response was ingrained in the dogs on such a deep level that the food was no longer the stimulus for salivation; rather, the ringing of the bell alone made the dogs salivate.

This can be seen in people's everyday behavior in different situations. An infant will learn to respond to the sound and smell of its mother before being given a bottle; the child is responding not to the bottle, but to the voice or scent of the mother. Similarly, if every time a child's parent calls him by his full name ("Come here, John Michael Smith!"), he gets yelled at, his heart may beat fast just hearing his full name being called, before his parent has even scolded him.

Let There Be Light

Light and different types of light can influence and affect how one learns. In the 1940s and 1950s, biologist John Ott discovered that cool fluorescent lights (which are used in many classrooms) can make some children overly excited, thus making it difficult for them to learn, especially those students with attention-deficit disorder (Natural light, or light that closely mimics natural light, is best for studying and learning.

Operant Conditioning

Unlike classical conditioning (which involves involuntary response to a certain stimuli), operant conditioning involves voluntary response to a certain stimuli based on positive or negative consequences that result from the response. First put forth by psychologist B.F. Skinner (1904–1990), an example of operant conditioning is training a dog by using treats or verbal praise to reinforce the desired result. If an owner trains her dog Fido to give her a paw when the dog's shoulder is touched and the dog performs the task and is rewarded with a biscuit or kind words, the dog will associate successfully performing the task with the tasty treat or the praise. Similarly, if a dog is consistently scolded when it chews something it should not, the dog will make the association between chewing a forbidden item with harsh words and will learn not to engage in that behavior anymore. The same principles apply to human behavior. If a child learns that she is rewarded by successfully completing her homework each night, doing her homework will become important to her.

Positive reinforcement of a behavior will usually cause a certain behavior to continue, while punishment or the absence of reinforcement will result in a behavior being extinguished. Behavior modification, a way of promoting positive behavior and eliminating negative behavior, is built around principles of operant conditioning.

Right-side and left-side Dominance

There has been much attention given to the notion of brain dominance in recent years. A popular book on learning to draw is entitled *Drawing on the Right Side of the Brain: A Course in Enhancing Creativity and Artistic Confidence*. This refers to the split-brain theory put forth by scientists who believe that the left side and the right side of the brain represent different types of thinking and that each person leans toward one or the other.

The left side of the brain is geared toward verbal skills, analytical ability; the left side of the brain also emphasizes aggressiveness and rigidity, and organization. It has been found

that left-brained individuals are typically drawn to pursuing careers as accountants, attorneys, or careers in the military. In contrast, the right side of the brain is more geared to artistry, playfulness, intuitiveness, and fluidity; passivity and emotional flexibility are signs of right-brain thinking. It has been found that right-brain people are more likely to become artists, entrepreneurs, and educators.

The theory of brain dominance, when applied to the arena of learning and education, means that instructors and parents, when possible, need to take into consideration whether a child is left-side or right-side oriented and tailor teaching methods to that dominance.

Observational Learning

Another way that people learn is through watching others or observing. A teacher trying to teach students how to add several numbers together will often explain the principles behind the method and will then demonstrate the method by solving a sample problem. The students then learn by observing the teacher. This is true of sports as well (watching a team execute certain plays during a sporting event) or behavior (watching someone get a desired result by giving a certain response). For example, a person might learn how to disarm her parents when they are angry with her by observing and adopting her brother's response, which seems to effectively calm their parents.

Observational learning is important in social learning. Young adults are likely to observe the habits and behaviors of their peers and adopt them as their own if they see those individuals gaining social acceptance through those habits and behaviors. This can include innocent things, such as ways of dressing or studying, or more harmful things, such as choosing to smoke, because those who do have gained a result that is desirable to those observing them.

Modeling (basing one's behavior on that of another person with whom there is a strong identification or desire to be like) is a part of observational learning, and young adults can model their friends' behavior as outlined in the previous paragraph. Modeling can also take place between people and someone they admire but do not personally know, such as a celebrity. For instance, if a young adult is a big fan of Madonna and hears that she does yoga every day, that young adult might be likely to take up yoga. The same holds true even if the person upon whom the teens are modeling themselves engages in harmful behavior. A celebrity who is caught engaging in risky behavior may influence young adults (and older adults) to engage in similar behaviors. Celebrities and public figures are often called "role models," even when they do not wish to be. They are generally held to higher standards than other people because their behavior is more likely to influence a large number of people.

Intelligence

Intelligence is defined most broadly as the ability and capacity to understand. It has taken many years for researchers to understand how to determine the precise differences

between very intellectual individuals and those who are less so. Until Alfred Binet (1857–1911), a French psychologist, sought to identify why certain students in French schools in the early twentieth century were not learning at the same pace as other students, no one had come up with any sort of solution to the question of how to measure intelligence. Using a trial-and-error approach to compiling his test, Binet developed his questions based on a division of students into categories of "bright" or "dull." The questions that ended up on the test were the ones that reinforced the difference in knowledge between these two groups.

The intelligence quotient (IQ) is the measure of intelligence as based on intelligence tests and the intelligence of the general population. While Binet created and published the very first standardized test of human intelligence (which was revised several times), it was American psychology professor Lewis Terman, of Stanford University, who came up with the actual formula for determining IQ: divide the test taker's "mental age," which is revealed by his or her score on the intelligence test, by his or her chronological age. The resulting number is what Terman called the intelligence quotient or IQ. In 1916 Terman brought the existing Binet test from France to the United States, translated it into English, and developed a new set of standard questions for American children. He named the new test Stanford-Binet.

However it is that we learn, I am grateful for the ability to remember and I am grateful for the learning which makes us remembered.