THE STRUCTURE OF LEARNING

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Chapter 2

Association

The following section shall discuss the idea of *ASSOCIATION.* This is the idea that we learn through a process of connecting a subject we might study with a completely different one.

The ideas and objects we encounter in everyday life are not only useful in raising the interest of a student. They are also useful for memory. Facts, knowledge, ideas, concepts and skills are all stored in neuronal connections. The idea of A*ssociation* becomes relevant at this point. Memories are formed through a process of perception and retention. Information is perceived when it enters the brain by using parts of the body which are visually sensitive, auditorily sensitive, or sensitive in any other way. Then the information proceeds to the brain and is stored in it. The more one perceives the same information over and over again, the

more brain pathways are created and made stronger. Thus Associations have a real, physical side to them, for we might understand neural pathways to be identical to Associations in this context. As a result of this process, data becomes more accessible. The operation of **repetition**, just described, is one way of learning through Association.

A good, well known metaphor for this process is a field of wheat. If you pass across a field one time only, it will be very difficult . Because the grass growing in the field is so tall, simply making a step through it requires a great deal of effort. Even if someone is able to make it across, after a few days any signs of his or her passage will have disappeared completely.

But if someone were to pass across that field each day, in the exact same place, several times a day, after a few days, a small route will slowly emerge. That is the logic of the process of associations.

There is a second way to learn through *Association,* in addition to repetition. Suppose one were to structure his or her associations by connecting objects of study with items found in everyday life. In addition to storing these ideas in their original form, the mind will also attach them to concrete information. This will increase the number of connections to the same concept, and this will increase one's memory concerning that concept. We may conclude that for the best learning outcomes, *the subject studied must be associated with an* ***object of quality***. Such

an object is most ideally an everyday process which is practical, observable, and easily understood.

There is still a third procedure to consider. To increase our ability to store and remember, we can increase the number of connections by creating **multiple associations**. It is been suggested that each person has a specific learning style. Some are more inclined to learn by seeing (visual), others by hearing (auditory) and others by touching, moving or feeling (kinesthetic).[1] By using each of these *neuronal pathways* we increase the number of connections toward the object of study. For example, let us say that a Chinese child is learning English. We can say the word 'apple', but he may better remember this word if he is presented with an image of an apple (visual) along with someone actually saying the word (auditory). In addition,the child could act as though he was eating an apple (kinesthetic and real life situation).

Out of all of these neuronal pathways, the brain has preferences. François Gauquelin, in his book, Developper sa mémoire, (Develop Your Memory), states:

"Bien mémoriser une information c'est dans tous les cas où cela est possible l'associer à une forme visuelle, à un concept concret, et la placer dans un contexte affectif." [2]

In the above example, if the little child would have pictured his beloved

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1 Barbara Prashnig, *Learning styles and personalized teaching. London : Network Continuum Education, 2006.*

2**"Effectively memorizing a piece of information involves, when it is possible, associating it to a visual form, to a concrete concept, and then putting it in affective context. "**

mother giving him the apple, that would have made the association even stronger. Real life and affection are therefore very useful together. When we want to associate strongly with a concrete object, it is far better to use an emotionally charged object or a person. It could be a mother or father. It could also be a brother, sister, cousin, pet, a lost love, a boyfriend or girlfriend, or anything that has sentimental value.

We can increase these associations further simply through putting our newly-acquired knowledge to use. For example, consider a right-handed individual who suffers an accident that leaves him unable to use his dominant hand. He will be forced to use his left hand and will discover that in time, that he will be more easily able to manipulate his left hand. Through the constant use of his left hand, he has gained a new kind of knowledge and his associations continue to drastically increase.

Through constantly putting our newly-acquired knowledge into practice, we become more comfortable utilizing the skills this knowledge gave us by multiple associations. This will continue until it becomes second nature.

Consider an athlete such as a tennis player, when she first started playing, she possessed little skills and was unable to compete against other more experienced players. However, with enough practice and training, her abilities began to improve. As her skills increased, she became more comfortable playing the game

until at last she was able to play without giving any thought to her technique. It had become second nature.

Unfortunately, this process also works in the opposite direction. Let us reconsider the accident victim from the earlier example. Suppose he regained the use right hand. After he goes back to using it, he will naturally cease to employ his left hand to perform many of his tasks, especially ones demanding detail like writing. In time, the skills of his left hand will atrophy; we might say that some of his associations have faded. In other words, he must '**use it or lose it**.'

Earlier it was mentioned that every human being may learn through three different ways: visually, auditorily, or kinesthetically. However, it should be mentioned that these are not the only ways people gain knowledge. Nevertheless, we shall focus on these methods for the time being, for the sake of the value these methods have for the idea of learning by *Association*.

Let us consider each sense individually.

Between visual pictures, auditory sounds, and kinesthetic experiences of all kinds, an image has immense value in learning.

Earlier François Gauquelin discussed three ways in which we memorize what it is we want to learn. In the same book mentioned earlier, he continues to express his thought on this: " De nombreuses expériences entreprises par les chercheurs en psychologie confirment nos constatations personnelles: pour tous les types d'informations (visuelle, auditive, tactile, abstraite,...), ce sont les informations visuelles qui sont le mieux mémorisés." [3]

3**" Many tests and experiences that have been performed by psychologists confirm our**

We should strongly take this fact into account when we teach either a class or an individual student. We need to use images, even if they are mental images, such as metaphors. For example, consider electricity. Some metals conduct electrons better than others, copper for instance. It is the same thing for visual images; it seems that they go deeper into the memory than either sounds or tactile data for the average person.

The more images are **detailed, precise and clear**, the more they cause strong associations. These associations are not imaginary, as stated already. They are real, physical things. If we present our students with meaningful images, then stronger brain pathways result.

Earlier, Gauquelin stated that teaching through images is generally the best way of building Associations. However, learning techniques which utilize the other senses are nevertheless valuable. Hearing, for example, may also add to the learning of a concept that one needs to keep in one's memory.

Consider someone who wishes to learn a new language. Suppose that rather than go to a language school, the student decides to learn through recorded lessons on a tape or CD. Anyone familiar with this approach knows that, so long as the quality of the recorded lesson is very high (for example, the Pimsleur tape series) ,

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personal observation: of all types of information (visual, auditory, tactile, abstract,...), it is visual information that is memorized best."

one can learn the basics of a language by hearing and repeating only.

While learning a language this way, the student may improve her pronunciation of a second language, such as French just by listening to the recorded words. Also, she may begin to develop basic conversational skills in foreign languages such as Chinese, Japanese, Hebrew, or Arabic. In addition to just listening, the student may improve her abilities through more interactive methods (which may be both visual and auditory). For example, she might utilize an approach called *Echo Reading*, in which she would read a text aloud, along with a recording of a native speaker reading the same text. As she does this, the student's brain will measure any differences between the student's pronunciation and rhythm and those of the reader on the recording. While this happens, the student's brain will work to **correct the 'gap'** between the two voices.

Of course, reading does not always have to be done in the company of another voice. The student will also benefit just by reading on her own. Simply reading out loud may help her to remember a text more clearly. For example, memorizing the names of rivers, cities and countries in a geographical map may be easier if we repeat loudly many times what we have to remember.

Finally, let us consider kinesthetic methods of building Associations. Typically bodily sensations such as tactile touching, movement, or feeling are often forgotten by educators. In fact, many educators are not even aware of the

extremely useful role these sensations could play in teaching.

Whenever we utilize our physical sensations, all the body is involved. A **great deal of neuronal stimulation is activated** whenever we touch, move or react to physical stimuli, and many connections and associations are constructed as a result.

Recall that earlier we discussed the importance of affectively charged objects. Objects to which we are attached emotionally are very meaningful, because feeling an emotion for anything IS a bodily sensation. Consider how the heart races at the sight of a majestic mountain. Emotions or feelings have a real, physical effect on our bodies. This fact may be used to an educator's advantage if he can use these feelings to build new associations.