

# Learning Styles and Memory

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## **Abstract**

The purpose of this article is to examine the relationship between learning styles and memory. Two learning styles were addressed in order to increase the understanding of learning styles and how they are applied to the individual. Specifically, memory phases and layers of memory will also be discussed. In conclusion, an increased understanding of the relationship between learning styles and memory seems to help the learner gain a better understanding of how to maximize benefits for the preferred learning style and how to retain the information in long-term memory.

## **Introduction**

Learning styles, as identified in the Perpetual Learning Styles Theory and memory, as identified in the Memletics Accelerated Learning, will be overviewed. Factors involving information being retained into memory will then be discussed. This article will explain how the relationship between learning styles and memory can help the learner maximize his or her learning potential.

## **Learning Styles**

The Perceptual Learning Styles Theory lists seven different styles. They are print, aural, interactive, visual, haptic, kinesthetic, and olfactory (Institute for Learning Styles Research, 2003). This theory says that most of what we learn comes from our five senses. The Perceptual Learning Style Theory defines the seven learning styles as follows:

The print learning style individual prefers to see the written word (Institute for Learning Styles Research, 2003). They like taking notes, reading books, and seeing the written word, either on a chalk board or thru a media presentation such as Microsoft Powerpoint.

The aural learner refers to listening (Institute for Learning Styles Research, 2003). The aural learner is a very good listener and likes to talk. The aural learner really likes listening to music and can learn music through association of a song and memorized phrase. The aural learner in actuality learns well through lectures and can often repeat what the speaker has said almost perfectly.

The interactive learner refers to verbalization (Institute for Learning Styles Research, 2003). An interactive learner often prefers to discuss things with others and finds small group discussions very informative and stimulating. The interactive learner really enjoys questions and answer sessions. You will often find the interactive learner humming or talking to their selves because they cannot stay quiet for great lengths of time. The interactive learner just likes hearing their own voice.

The visual learner refers to seeing visual depictions such as pictures and graphs (Institute for Learning Styles Research, 2003). The visual learner has a vivid imagination and therefore prefers visual arts and media. The visual learner's imagination is so great that they can conjure up images of a form by seeing it in their mind. The visual learner constantly needs something to watch otherwise they will get bored. The visual learner is very often quiet and doesn't feel the need to talk at any great length of time. The visual learner greatly benefits from seeing and watching demonstrations and really likes visual stimuli; such as pictures, slides, and graphs.

The haptic learners refer to the sense of touch or grasp (Institute for Learning Styles Research, 2003). The haptic learner loves to piece things together and will be very successful with tasks that require him/her to manipulate something. The haptic learner enjoys doing artwork, tracing words and pictures and will often be found doodling. The haptic learner loves a hand on approach and will take an object apart just to see how it works. The haptic learners are always seen tinkering around with various items. Once they have taken the object apart, they now know how it works and can tell you what they have learned through this process.

The kinesthetic learner refers to whole body movement (Institute for Learning Styles Research, 2003). The kinesthetic learner will use movement to help their concentration. You will sometimes find this learner fidgeting or just finding some reason to move around because they always want to be doing something. This learner learns by doing and having direct involvement. They are not very attentive if they have to listen to a visual or auditory presentation. They are often very poor listeners.

The kinesthetic learner gestures when they are speaking to you. They really respond well to music by physical response activities because this learner learns better when they are able to move during the learning process. The kinesthetic learner loves to think out issues, ideas and problems while they are exercising and would rather run or walk if something is bothering them (Institute for Learning Styles Research, 2003).

The olfactory learner refers to sense of smell and taste (Institute for Learning Styles Research, 2003). The olfactory learner learns best through their sense of smell

and their taste. They feel that smells add to their learning and often connect a particular smell with a specific past memory. Smells have a very special meaning to them so therefore they place a special significance on them. The olfactory learner is often able to identify smells quickly.

## **Learning Styles as Related to Memory**

The Memletics Accelerated Learning Manual (Advanogy.com, 2003) lists and describes seven different learning styles that are similar to the Perceptual Learning Style. The difference is the way that they are described in relation to how the brain works (Advanogy.com, 2003). These styles are as follows: Visual learners refer using pictures, images, and spatial understanding (Advanogy.com, 2003). This learner uses the occipital lobes at the back of their brain that manages the visual sense. Both the occipital and parietal lobes manage spatial orientation. Aural learners prefer to use music and sound. Aural learners use the temporal lobes that handle aural content. The right temporal lobe is especially important for music. Verbal learners prefer using words, both in speech and writing (Advanogy.com, 2003). This learner uses the temporal and frontal lobes, especially two specialized areas called Broca's and Wernicke's areas (in the left hemisphere of these two lobes).

Physical learners prefer using their body, hands and sense of touch (Advanogy.com, 2003). This learner uses the cerebellum and the motor cortex (at the back of the frontal lobe) that handles much of our physical movement. Logical learners prefer using logic, reasoning and systems (Advanogy.com, 2003). This learner uses the parietal lobes, especially the left side that drives our logical thinking. Social learners prefer to learn in groups or with other people (Advanogy.com, 2003). This learner uses the frontal and temporal lobes that handle much of our social activities. The limbic system also influences both the social and solitary styles (Advanogy.com, 2003). The limbic system has a lot to do with emotions, moods and aggression. Solitary learners prefer to work alone and use self-study (Advanogy.com, 2003). This learner uses the frontal and parietal lobes, and the limbic system is also active with this style (Advanogy.com, 2003).

## **Function of Memory**

To better understand how we can retain the learned information, it is important to know how our memory works. Sprenger (2003) revealed from various sources that there are three phases of memory, the storage phase, the retrieval phase and the learning/encoding phase. Problems sometimes happen at any of these phases such as sleep deprivation, lack of concentration, or forgetting. She goes further by explaining

that there are three processes of memory, sensory memory, short-term memory, and long-term memory.

The sensory memory is where the learning styles come in. The sensory memory is how the information is entered into our brain which is through our senses. Our senses are how we perceive the world through association of sights, sounds, touches, smells and tastes (Sprenger, 2003). The immediate memory is a process where the sensory memory is stored in the brain, also known as conscious memory. This process lets us hold up to at least four bits of information for a short period of time. Immediate memory holds the information while new information is being added (Sprenger, 2003).

The short-term memory is between the immediate and the long-term memory (Sprenger, 2003). The short-term memory is where the new and old information get together. Short-term memory usually stores the first word of a sentence so that you can understand the general idea until you get to the end. In other words it takes short-hand for you. An example of this would be if you were given a problem to solve and you had a few clues to use, the short-term memory would hold the clues until you got more information to solve the problem. A classic example of short-term memory usage is when students use their short-term memory to study for tests. The student will often study and take in a lot of information the night before an exam then use it for their exams the next day. This process is not recommended because the information will not be stored in their long-term memories. Sprenger further indicated that there are four factors that affect immediate memory: interest, intent, understanding and prior knowledge. If interest, understanding and prior knowledge are not there, then the intent to remember can make a difference.

Long-term memory can be separated into two types: implicit memory which is memory that occurs without a conscious effort and explicit memory which is the opposite in which it occurs with a conscious effort. Explicit memory is our memory that holds facts and events (Sprenger, 2003).

Explicit memory is broken down into two categories, the first is semantic. Semantic is information related for factual information (Sprenger, 2003). This information can be problematic to hold on to due to the fact that unless the information is related to something the learner can understand the information will not be retained. The second memory under explicit memory is episodic memory. Episodic memory is when we remember a place that we have been and we recall what we learned there (Sprenger, 2003).

Implicit memory is remembering information that is learned subconsciously (Sprenger, 2003). These memories are brought into the surface by conditional

responses, emotional, and procedural memories. Conditional responses are brought about by a sound or a phrase. Procedural memories are memories that are brought on by movement such as hand movement to help the person to recall. Emotional memories are stimulated by experiencing emotions (Sprenger, 2003). The theory of emotional memories is if the person can feel it then they will be able to remember it.

In order to achieve maximum learning proficiency the body and mind need to be in a good state. Cells can be categorized into three layers which are: cell state, physical state, and mental state. The cell state is where the basic nutrients such as water and oxygen reside. The physical state is the layer where health issues such as sleep and fitness reside. And the last layer is mental state; consisting of attention, concentration, positive mental attitude, and goals (Advanogy.com, 2003).

## Conclusion

Kratzig and Arbuthnott (2003) concluded there was insufficient evidence that the Learning Styles alone provides a total basis to retain learned information. They suggested that helping individuals learn effective memory strategies across all stimulus modalities and contexts would be beneficial. They also discovered that what stimulated the memory retention depended upon the interest of the information, method used to deliver the information and the motivation of the speakers.

The Perceptual Learning Style Theory and the Memletics Learning Styles theories reveals individual learning styles and how important it is to know what they are in addition knowing how memory works within the learning process. Linking memory and learning styles together depends upon several factors. These factors are background knowledge, interest level, physical state, and emotional state. It is important to know where the learner in regards to these factors to achieve the ultimate learning experience.

## References

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