SPHEIR Pedagogical Training 1.0

Learning

Presented by

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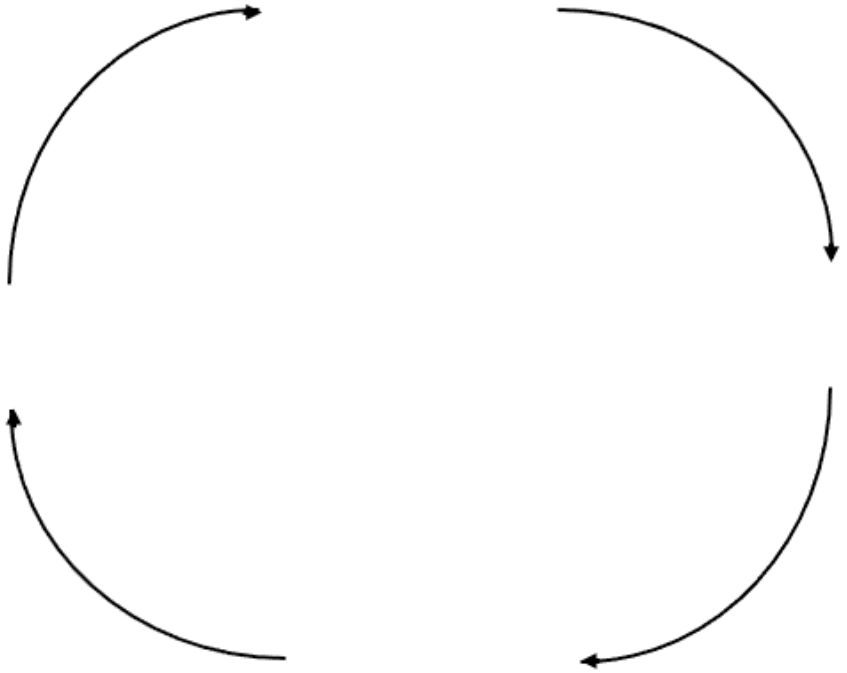
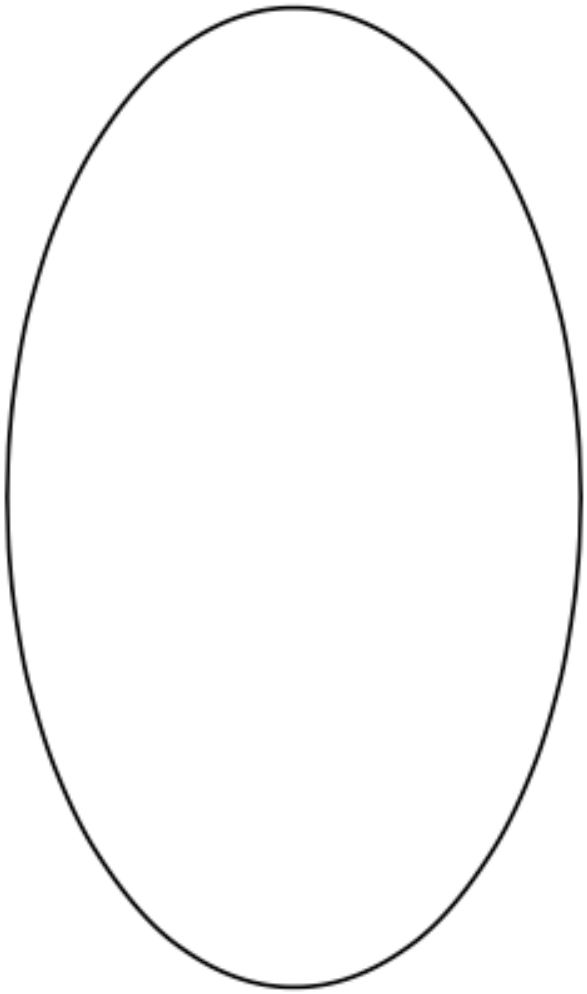
Kolb's Cycle of Learning:
From: Kolb, David A. (1984) Experiential Learning: Experience as a Source of Learning and Development. Prentice-Hall, Inc., Englewood Cliffs, NJ
Also see: http://www.learningandteaching.info/learning/experience.htm



Concrete experience: This is where we have an active experience which is immediate, personal, and provides the information and basis for the next stage, reflective observation.
Reflective Observation: This is when we consciously reflect on the experience, which in turn leads to the formation of abstract concepts based on the reflection.
Abstract Conceptualization: This is where we attempt to conceptualize a theory or model of what was observed and develop a plan. This results in new concepts or ways of modifying the next experience that can be actively tested. This is also the stage at which we make meaning of the experience at a personal level.
Active Testing or Experimentation: This is where we take action on our plan. The result of our action is a new concrete experience, starting the cycle again.

Rear

Learning & the Brain



Front

Learning is a Cyclic Process

This model provides a means of understanding how the brain learns. The mechanisms by which learning occurs in the brain are far more complex than presented here, however, this model can help us help us better understand the process. This is adapted from the book by J.E. Zull, *The Art of Changing the Brain* (2002, Stylus Publishing, LLC, Sterling, Virginia).

There are four components to this model of brain learning:

Sensory and Post-Sensory Cortex: An interaction with the environment causes sensory glands to fire (eyes, ears, taste, feel, smell). The sensory and post-sensory regions of the cerebral cortex (back of the brain) receive and compile those neural signals. What is perceived externally is physically mapped on this region of the cortex. Note, these parts of brain do not make any interpretation of the sensory signals. The compiled sensory information is then passed on to the Temporal Integrative Cortex at the sides of the brain.

Temporal Integrative Cortex: This region takes the information from the sensory and post-sensory cortex and begins the process of integration of that information. A key function of this region is to identify "what and where." That is, what is being sensed and where is it? This region also is responsible for establishing relationships, such as spatial, temporal, personal, where the thing is in a story, degrees of where (such as is it a friend, family, stranger, enemy, etc). The region integrates the new information with existing memories. This is the start of comprehension of the experience. This region then passes this processed information on to the Frontal Integrative Cortex at the front of the brain.

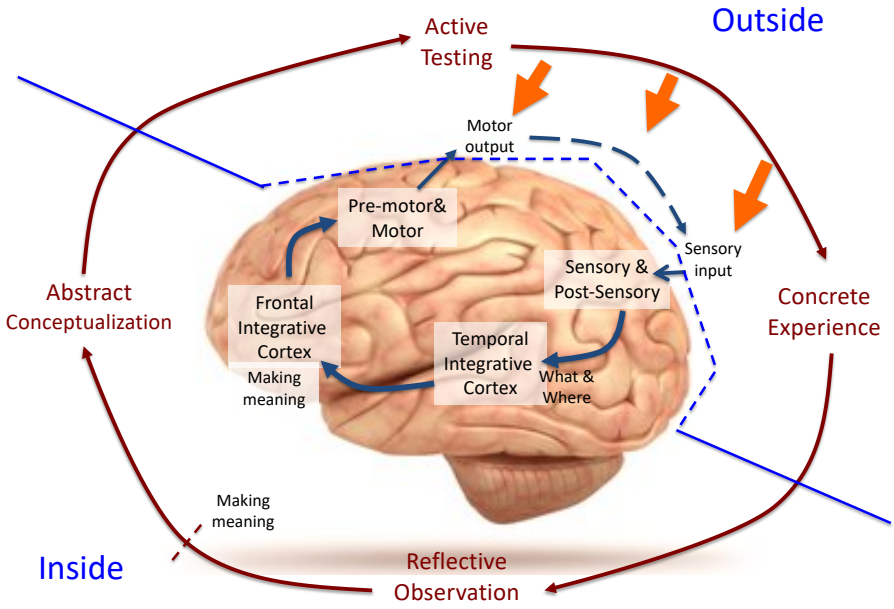
Frontal Integrative Cortex: This region is responsible for problem solving, calculations, creating ideas, assembling ideas into symbolic forms (such as language), making decisions, monitoring its own progress, and creating knowledge. The region has the working memory. This is also where we "make meaning" of our learning, that is, it becomes our personal thoughts, plans, etc. This region then passes the processed information on to the Pre-Motor and Motor Cortex at the top of the brain.

Pre-motor and Motor Cortex: This brain region controls and causes actions based on the integrative cortex functions. Actions may include doing, reading, writing, speaking, physical testing, and others. The result of these actions then is another sensory input.

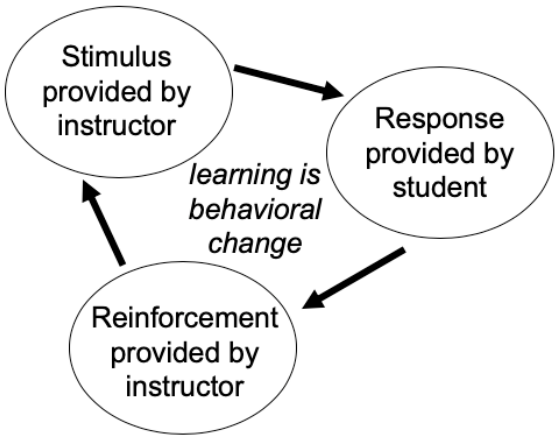
It is clear that the mechanism by which the brain learns is also cyclic. This cycle aligns well with Kolb's Cycle of Experiential Learning.

How does this relate to teaching?

Consider the inside the brain vs outside the brain model below. We are unable to reach inside of our students' brains and directly manipulate their learning process. On the other hand, we do have a great deal of opportunity to impact learning through the sensory inputs that we provide, the motor outputs that we solicit, AND IMPORTANTLY, the means by which we encourage and help our students complete the learning cycle and initiate another cycle. These are three points at which we have significant power to impact our students' learning (indicated by the three arrows in the model below).



This matches well with another concept of learning, that is learning is behavioral change. This model includes three components, stimulus provided by the instructor, response provided by the student, and reinforcement provided by the instructor, which in turn elicits another response by the student.



Complete this task before proceeding to the next video:

Consider these words:

analyze	**apply**	**create**	**evaluate**	**remember**	**understand**
_____	_____	_____	_____	_____	_____

Rank the words from 1 to 6 with respect to each other and according to the level of cognition (thinking) that the word represents. 1 = lowest level to 6 = highest level

You will end up with a 1, 2, 3, 4, 5, and 6