Teaching Tip: Learning with Marzano

Robert Marzano published his *A new Taxonomy of Educational Objectives* (2000) in response to Bloom's taxonomy. Like Fink, Marzano suggests a different perspective on the key elements and stages in the learning process.

According to Marzano's taxonomy, how we use knowledge to learn is affected by three systems: the Cognitive System, the Metacognitive System and the Self System.

Marzano's Taxonomy of Educational Objectives (2000)

Knowledge Domains

Marzano identifies three types of knowledge that are essential to thinking and learning:

Information is the substance that we think about. It includes everything from theories and generalizations to data and vocabulary.

Mental Procedures are what we do with information, and how we classify, analyze, and apply that information.

Physical Procedures are the physical skills we may need to be able to perform certain tasks, such as the proper hand motions in writing, or the physical skills to play a sport.
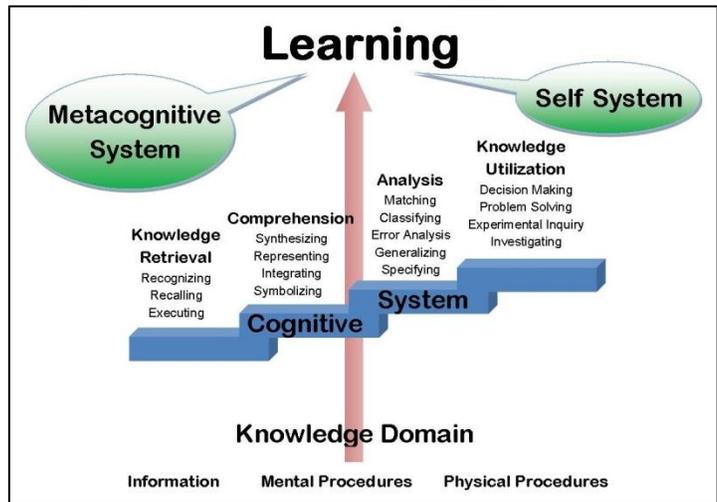
Systems

How we process information is then affected by three different systems:

Cognitive System

Once we have some knowledge from the knowledge domain, we can then go through the 4 stages of the cognitive system in order to learn.

1. *Knowledge Retrieval*
   Very similar to knowledge on Bloom's taxonomy, at this level you can recall information.
2. *Comprehension*
   Requires the ability to synthesize information and to be able to represent that information in an organized fashion.
3. *Analysis*
   Involves being able to analyze information through matching, classifying, error analysis, generalizing, and specifying in order to be able to apply the information to a new situation.
4. *Knowledge Utilization*
   Application of knowledge to answer questions or resolve problems in decision-making, problem-solving, experimental inquiry, and investigation.

Metacognitive System

The metacognitive system controls how we approach and adjust our learning in the cognitive system. It is about our thinking about our learning. Metacognition helps us identify the best strategies to be able to learn and understand new information. It involves specifying learning goals and then monitoring the execution of knowledge, accuracy, and clarity.

Self-System

The self-system is what motivates us to learn and can be positively or negatively affected by a number of factors. If we believe that the knowledge or skill we are going to learn is important and could help us in some way we will be more motivated to learn it. Our own sense of self-efficacy can determine if we will persist at learning something difficult or if we will give up. The emotions we experience in association with some knowledge and learning experiences can also positively or negatively affect our desire to learn.

Additional Resources

For a clear summary of Marzano's taxonomy, check out this article.

For an explanation of the different stages in the learning process, with examples, you can check out this PowerPoint Presentation

You can also check out this list of actions verbs for each of the systems in Marzano's taxonomy.