The Cattell-Horn-Carroll (CHC) Theory

As stated earlier, the Cattell-Horn-Carroll (CHC) model of cognitive abilities is the empirically based, valid and measurable construct for the analysis of learning abilities. The Cattell-Horn-Carroll (CHC) Theory classifies cognitive skills within seven clusters of abilities that demonstrate moderate to highly significant correlations to academic achievement skills. The seven CHC areas are defined:

> **Comprehension-Knowledge:** The breadth and depth of knowledge including verbal communication and information.

> **Fluid Reasoning:** The ability to reason and solve problems that often involve unfamiliar information or procedures. Fluid reasoning abilities are manifested in the reorganization, transformation, and extrapolation of information.

> **Auditory Processing:** The ability to discriminate, analyze, and synthesize auditory stimuli. Auditory processing skills are related to phonological awareness.

> **Long-Term Retrieval:** The ability to store information efficiently and retrieve it later through association.

> **Short-Term Memory:** The ability to hold information in immediate awareness and then use it within a few seconds, also related to working memory.

> **Processing Speed:** The speed and efficiency in performing automatic or very simple cognitive tasks.

> **Visual-Spatial Thinking:** Spatial orientation, the ability to analyze and synthesize visual stimuli, and the ability to hold and manipulate mental images.

Why Use the Cattell-Horn-Carroll (CHC) Theory?

Students use their whole brains to learn and we are interested in examining how the cognitive and achievement abilities are consistent with one another. For example, the skills that contribute to learning to read include auditory discrimination, short term memory, long term memory, processing speed and basic reading abilities. Instead of looking for a student's "true IQ" to predict learning, we will examine the learning skills that are consistent with the achievement skills students learn in school.
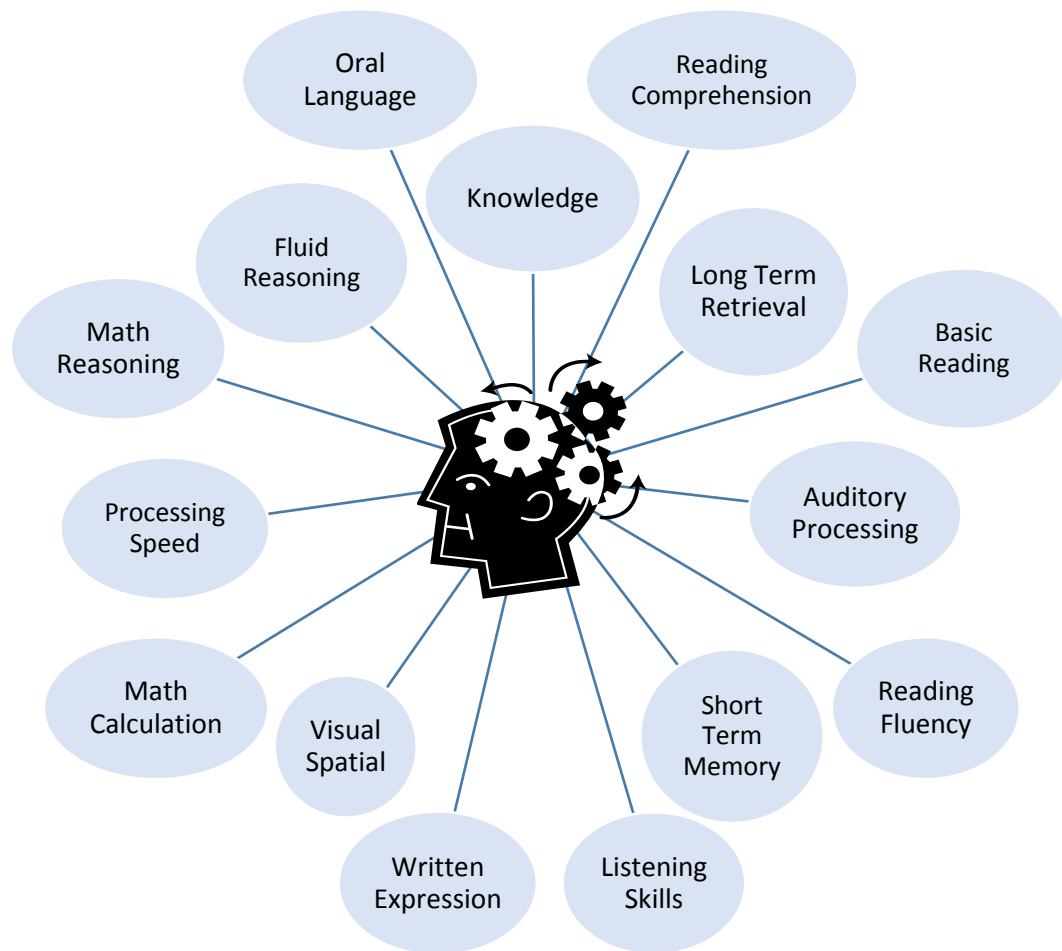
Cognitive and academic skills work together in the brain.

In our model, will look for consistencies among cognitive and academic skills. Consistencies are identified among the skills that cluster together as weaknesses and the skills that cluster together as strengths. The consistencies among skills are then examined relative to a normal ability profile.