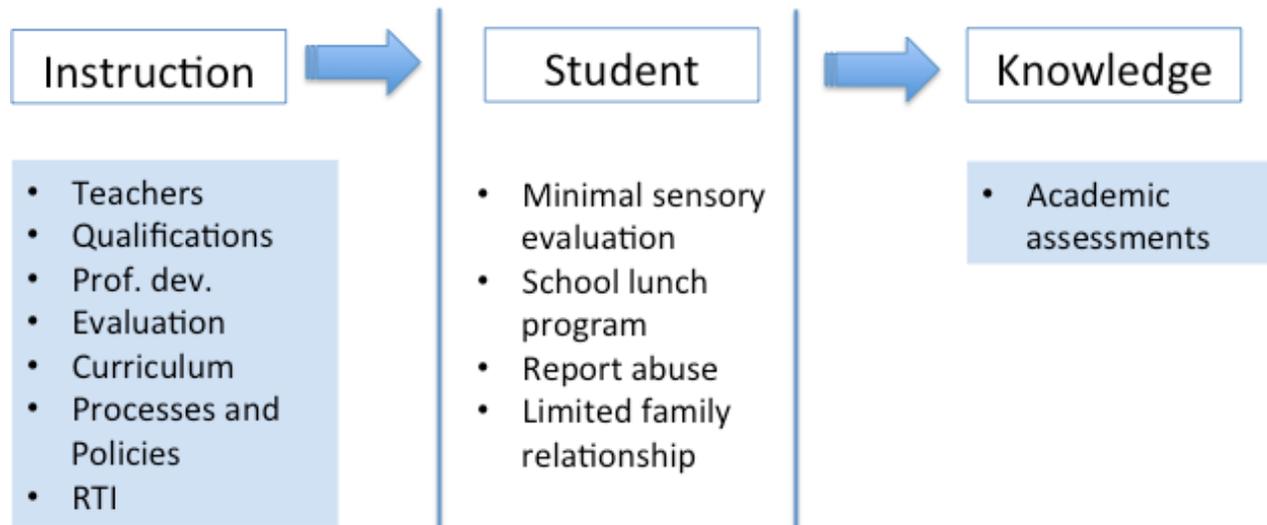## Background

The current educational model focuses on instruction, curriculum and testing. If a student tests below grade level, generally more instruction is provided in the hopes it will bring a student up to grade level. It is assumed that good instruction will lead to student knowledge. This model generally does not address the factors that impact learning on the individual student level; it does not address the Skill Gap.

| Instruction | Student | Knowledge |
|---|---|---|
| • Teachers<br>• Qualifications<br>• Prof. dev.<br>• Evaluation<br>• Curriculum<br>• Processes and Policies<br>• RTI | • Minimal sensory evaluation<br>• School lunch program<br>• Report abuse<br>• Limited family relationship | • Academic assessments |

## Instruction

Quality of instruction is important. However, instruction alone does not create learning success. Success is dependent upon how effectively students can learn. For students who have the underlying skills, most instruction can be effective. For students who have some deficit or challenge in one or more of the learning process elements, learning can be a struggle. Instruction can be differentiated for some students who struggle, but that is usually insufficient unless the underlying cause is identified and remedied.

## Academic Assessment

Traditional testing indicates whether a student is above, at, or below grade level in expected knowledge. If a student is below grade level, academic testing generally does not provide much guidance to help understand why the student is behind. It does not identify the underlying causes of learning struggles. Testing has become relatively sophisticated in measuring the individual elements of learning based upon a common-core standards model. Additional instruction can focus on specific knowledge deficits, but it generally does not help understand and address the elements of the Skill Gap.

# Student-Centric Learning Process Model
## Focus on closing the Skill Gap
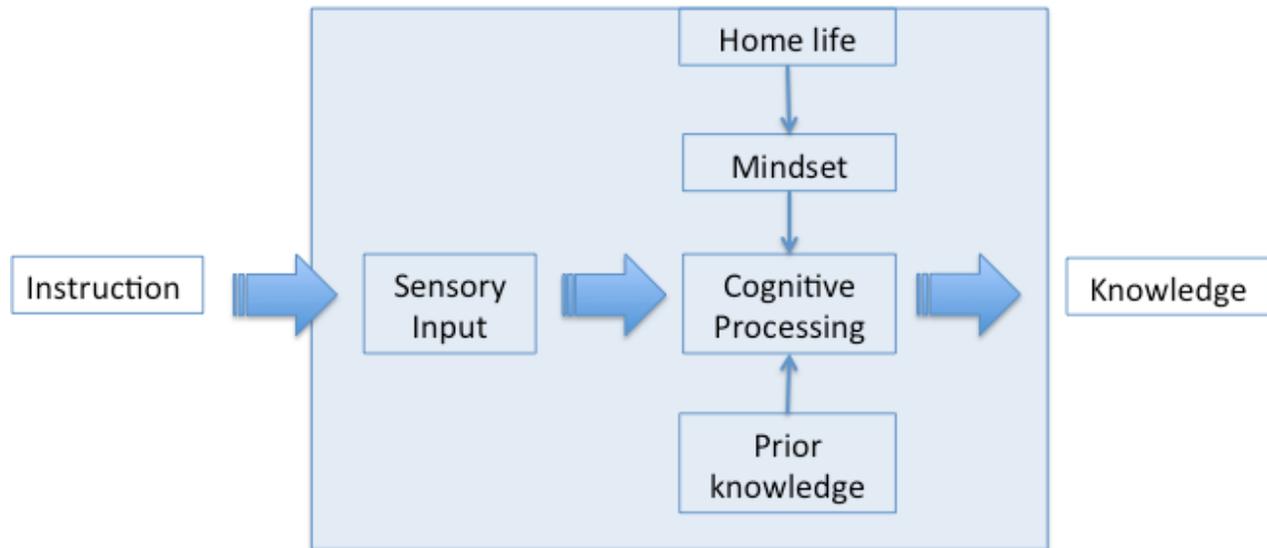


Learning is a process. Students learn based upon their exposure to instruction and experiences, but how well they learn is impacted by at least five other factors: 1) sensory input, how well information gets into the brain, 2) how well their brain processes information, cognitive processing skills, 3) their home life situation, 4) their mindset and social-emotional skills, and 5) their prior knowledge and experience. An issue in any one of these categories could block or impede a student from learning effectively irrespective of instruction and testing.

## Sensory Input/physiological challenges

Information stimuli is processed through our senses and marshaled into the brain for further processing to make sense of the stimuli. Our sensory input system often selectively filters information and in some cases drops, skews or mixes up the information, which can make learning difficult. It is generally accepted that students should have a vision and hearing screening. But, sometimes that is not sufficient. There are a variety of variations on visual and auditory processing effectiveness that impact how well information is getting into the brain. This thereby impacts how well the brain processes that information and is able to make sense of the stimuli.

Some physiological challenges cannot be easily addressed. Below are several examples of challenges not typically screened or addressed, which have potential solutions.

1. Irlen Syndrome; a sensitivity to light which impacts visual perception, http://irlen.com. 10-12% of the population suffers from Irlen Syndrome.

2. Sleep deprivation (sleep apnea)—If a student is not getting sufficient sleep nightly that can impact cognitive functioning.

3. Eye tracking, fixation, tracking saccades; http://eyecanlearn.com

4. Rapid pattern recognition, rapid automatic naming, visual processing speed
    a. Reading requires visual processing and specifically the ability to recognize patterns. Fluent reading requires this process to be rapid and automatic. The following link provides access to an exercise to test and develop visual processing speed and rapid pattern recognition.
        i. http://brainskills.com/speed/speed.swf
        ii. Under options, select letters, numbers or mixed. Also select 1-4 characters per group. Start with one and work up to 4.
        iii. Practice 5-10 minutes daily until this exercise can be done rapidly and automatically.
    b. Decoding fluency is linked to phonemic awareness and the ability to translate visual images into a phonological code quickly and easily. The second element is often referred to as Rapid Automatic naming. More information is available at the following link, http://www.balancedreading.com/doubledeficit.html.
5. Primitive reflex issues, brain imbalance
    a. http://www.pyramidofpotential.com/primitive-reflexes/
    b. http://www.brainfitnessstrategies.com/juggling-brain-development/rhythmic-movement/primitive-reflexes.html
    c. http://www.brainbalancecenters.com/blog/2014/09/retained-primitive-reflexes-sign-brain-imbalance/
    d. *Disconnected Kids* by Dr. Robert Melillo

## Cognitive Skill Processing

Cognitive skill processing is the key to making sense of the world and learning. Everything we do requires cognitive skill processing. Of the major systems involved in learning, cognitive skills impact how the brain processes information: processing speed, visual processing, auditory processing, memory, attention, logic and reasoning.  These skills enable a person to process sensory inputs and then perform tasks such as reading, learning, paying attention, planning, remembering, understanding, and solving problems.

Until recently, cognitive skill testing was relatively expensive and resource intensive. It required a licensed professional to complete the assessment one-on-one with students. Now, affordable and proven online instruments are available to quickly screen students in 45 minutes.

The Gibson Test of brain skills is a nationally validated/normed online tool that measures cognitive skills functioning.  The 45-minute screening includes nine different mental tasks organized like puzzles and games on a computer.  By scoring the individual processing skills, the Gibson Test helps identify weak areas that may be contributing to learning struggles.  Even high-performing students may be compensating and working harder than necessary because of one or more weak processing skills.

Higher scores generally mean that processing information is faster, easier, and more effective. Lower scores mean that processing information is relatively harder, slower, and less effective. Knowing if an individual has any low processing scores helps us understand why learning may be

harder for that person and provides better guidance towards a solution. In most cases, processing skills can be strengthened through proper training to improve learning effectiveness and help individuals achieve their full potential.

## Home life

Past and current home life can impact student-learning effectiveness. This area is difficult to change, but even recognition of a problem can help a student. For students who have a challenging home life, just knowing that someone cares helps. The education system recognizes that nutrition is important. If a student is hungry learning is difficult. This is why the Federal School Lunch program was established. Teachers are required to report obvious abuse issues. But, there are many family situations that are difficult to identify and help improve.

We are working to build a social media platform to help connect families to community resources. It will include a journal tracking system to help families ensure children meet developmental milestones. It will include a self-evaluation tool to help families identify areas of need and guide them to connect with community resources.

## Mindset, social-emotional skills

If a student has low or vacant self-esteem, they may not feel success is possible. They may not try hard enough because they do not see a purpose. Students who do not have adequate character performance skills, such as persistence, typically give up easily. The work of Dr. Carol Dweck is especially important in this category; growth vs. fixed mindset. Below are several links that help to explain this concept.

Resources:
- http://www.mindsetworks.com
- https://www.youtube.com/watch?v=ElVUqv0v1EE
- https://www.youtube.com/watch?v=-_oqghnxBmY
- https://www.youtube.com/watch?v=JC82Il2cjqA&list=PL4111402B45D10AFC

## Prior Knowledge

What a student knows impacts how well they understand current instructional material. If a student is behind in basic knowledge, such as vocabulary, it is important to understand if this deficit is because of a challenge in one or several of the above categories, or simply because they have not been exposed to sufficient learning experiences.

If a student struggles because of one of the above four factors, that generally must be addressed first before instruction will be effective. Once the student is prepared to learn effectively, the best way to catch up a student is to provide access to online resources so they can catch up at their own speed. This is why making sure each student has Internet access at home with a computer they can use is important so they can study online to catch up. Once learning effectiveness has been improved, tutoring is more effective as resources are available.