



*"Education for our children  
needs to accommodate a child's thirst for understanding while developing  
underlying individual cognitive capacity."*

## Attention

**Attention** is more than just "paying attention." It includes such aspects as the ability to concentrate, to focus on one thing rather than the other, to finish tasks one begins, and to control what one says and does.

### ➤ Mental Energy

Mental Energy is the initiating and maintaining the flow of energy needed for cognitive work output. The perceived level of 'engagement'.

### ➤ Processing Controls

This is specific to a person being able to regulate the use of incoming information. It is processing control.

### ➤ Production Controls

This is specific to a person being able to regulate academic and behavioral output. It is about being able to turn on and off 'spontaneity'. A student having difficulty with this construct is often labeled as impulsive.

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## Language

Being able to articulate and understand language is central to the ability to do well as students and learners. Developing language functions involves elaborate interactions between various parts of the brain since it involves so many separate kinds of abilities – pronouncing words, awareness of different sounds, comprehending written symbols, understanding syntax, and telling stories.

### ➤ Expressive Language

The communicating and producing ideas orally and in writing.

If there is a problem here with expressive language, this encompasses the inability for the student to organize and plan thoughts and translate this into written or oral expression.

### ➤ Receptive Language

The processing and understanding incoming oral and written information.

If there is a problem here with receptive language, this encompasses the ability for the brain 'to hear' what the ear is hearing and process the information logically and quickly. *Symptoms include:* Difficulty hearing the difference between words, misinterpreting what someone is saying, not being able to selectively hear wanted information when there is interference, perceived inattention and quickness to becoming distracted.

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## Language in general

This area encompasses the ability to read, critically think and synthesize language-based information demonstrating a logical, succinct language-based response. *Symptoms include* the inability to see the main point of a topic/paragraph/book/conversation, not able to summarize information, and an inability to demonstrate writing that is organized and logical.

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## **Memory**

Even if, in the moment, people are able to understand, organize, and interpret the most complex information, if they cannot store and then later recall that information, their performance often suffers dramatically.

### ▶ Short-Term Memory

This skill is about briefly registering new information that is used, stored, or forgotten. When there is difficulty here ~~ this is the difficulty in being able to take in and retain information long enough to allow the working memory to process it. *Symptoms include*: Difficulty with immediate recall of unrelated information, difficulty following conversations and retaining the information.

### ▶ Active Working Memory

This skill is about mentally suspending information while using or manipulating it. When there is difficulty with working memory ~~ this is the difficulty taking information and manipulating it e.g. reversals of order, manipulation of portions of information. *Symptoms include* trouble remembering multiple instructions and acting upon them, difficulty in breaking down and applying sequential directions.

### ▶ Long-Term Memory

This skill is about retrieving and permanently storing information, including knowledge, skills, and experiences.

When there is difficulty with long term memory ~~ this is the ability to think and speak at the same time because recall/retrieval for words and reflections is co-incident and automatic. *Symptoms include*: slowness in response to conversation, having to think and process before responding i.e. not simultaneously.



## **Social Cognition**

One of the most often overlooked components of learning is the ability to succeed in social relationships with peers, parents, and teachers. Students (and adults) may be strong in other construct areas, and yet have academic difficulties because of an inability to make friends, work in groups, or cope effectively with peer pressure.

### ▶ Verbal Pragmatics

Using and understanding language within social contexts.

### ▶ Social Behaviors

Acting in a way that fosters optimal relationships with others.

### ▶ Political Acumen

Nurturing positive relationships with important people, particularly adults.

### Social Cognition

Social Cognition is the ability to appreciate and 'read' social situations, then behave appropriately based on this 'read'. *Symptoms can include* difficulty with fitting into

social situations, weak social skills, difficulty 'reading' subtle relationships and their implications i.e. what might have lead up to it and the potential consequences of a social situation.

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### <> **Higher Order Cognition**

Higher Order Cognition involves the ability to understand and implement the steps necessary to solve problems, attack new areas of learning, and think creatively. Abstract reasoning is reasoning through e.g. analogies and analogical reasoning and 'seeing' relationship clusters.

#### ➤ Concept Formation/Transformation

Integrating a series of features that often go together to form a class of ideas or objects.

#### ➤ Critical Thinking

Evaluate products, ideas, and opinions

This area encompasses the ability to read, critically think and synthesize language-based information demonstrating a logical, succinct language-based response. *Symptoms include* the inability to see the main point of a topic/paragraph/book/conversation, not able to summarize information, and an inability to demonstrate writing that is organized and logical.

#### ➤ Creativity

Thinking independently and producing self-generated thoughts or other products.

#### ➤ Problem Solving

Applying a systematic stepwise approach to complex questions or challenges.

#### ➤ Rule Use

Learning, developing, and applying rules and principles.

#### ➤ Logical Thinking/Reasoning

Coming up with sensible, thoughtful answers to complex issues. When there is difficulty here there is difficulty understanding the relationships among two or more ideas or concepts. *Symptoms can include:* reversals of 'b'- 'd'; 'p'- 'q', difficulty reading a clock, needing to reread material to comprehend it, problem understanding cause and effect, trouble with mathematical/language-based reasoning, and problems seeing similarity and differences.

#### ➤ Mental Representation

Portraying new ideas in one's mind so they are most meaningful and lasting.

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### **Neuromotor Functions**

Whether students are trying to write their first words, catch a football, or punch away at a computer keyboard, their brains' ability to coordinate their motor or muscle functions are key to many areas of learning.

#### ➤ Gross Motor Function

Using the body's large muscles in a coordinated, effective manner.

Proprioceptive and Vestibular Perception is the ability to know where your body is in space and the complete integration of sensory-motor information. *Symptoms include:* awkward body movements, lack of rhythmic response to music, inability to keep a beat to a metronome or perform cross lateral movement physically.

#### ➤ Fine Motor Function

Demonstrating effective manual dexterity particularly as it pertains to art.

### ➤ Graphomotor Function

Maneuvering a utensil to produce handwriting.

When there is difficulty here there is difficulty with the act of writing ~~ and this can be witnessed through messy handwriting, misreading, irregular spelling, speech rambling, careless written errors in mathematics, poor written performance.



### **Temporal-Sequential Ordering**

Whether it's being able to recite the alphabet or knowing when to push a button to give a response on "Jeopardy," being able to understand time and sequence of various items or pieces of information is a key component of learning.

#### ➤ Sequential Awareness and Perception

Being alert to the presence of and identifying an incoming sequence.

This skill requires the ability for holding numbers & letters and manipulating these numbers and in a sequence of operations. *Symptoms include* finger counting, trouble retaining numbers in one's head, problems retaining math facts, poor sense of estimation.

#### ➤ Sequential Memory

Sequential Memory is the ability to retain the order of steps, events, or other sequences

1) Sequential memory includes memory of symbol patterns. *Symptoms include* difficulty in remembering letter patterns, words. Symptoms include inconsistent spelling of words, and difficulty retaining the proper spelling of words.

2) Sequential memory also includes the ability for holding numbers and manipulating these numbers and in a sequence of operations. *Symptoms include* finger counting, trouble retaining numbers in one's head, problems retaining math facts, poor sense of estimation.

#### ➤ Sequential Output

Creating products in which the content is arranged in the optimal order.

#### ➤ Time Management

Using time efficiently.

#### ➤ Higher Sequential Thinking

Using serial order to enhance concept development and problem solving.



### **Spatial Ordering**

Closely related to the functions of time and sequence, spatial ordering is the ability, for instance, to distinguish between a circle and a square or to use images to remember related information. On a more complex level, spatial ordering helps musicians, for instance, to be able to "see" a piano keyboard, and enables architects to "imagine" the shape of a particular room.

#### ➤ Spatial Awareness and Perception

Being alert to the presence of and identifying an incoming configuration.

#### ➤ Spatial Memory

Storing and recalling shapes, symbols, and images.

1) This is the ability to remember persons' faces, landmarks, unrelated objects and

their detail. *Symptoms include* troubling remembering landmarks, faces, trouble finding objects --- often coined 'the refrigerator stare' -- can't find what you are looking for and it is in front of your face.

- 2) This is the difficulty in retaining and automatically recognizing symbol patterns. *Symptoms include* difficulty in remembering letters, words. Inconsistent spelling of words, and difficulty retaining the proper spelling of words.
- 3) This is the ability to remember visual patterns and their placement e.g. patterns on matrices and requires understanding of space and dimension e.g. re-creating an image using a grid to guide.

#### 👉 Spatial Output

Creating products that have spatial characteristics

#### 👉 Higher Spatial Thinking

Reasoning and conceptualizing without language by using mental imagery.

Spacial reasoning is one's ability to visualize and manipulate where one is in space and how space is organized around oneself or oneself within a space e.g. reading a map without having to turn it around, having an organized work space. E.g. remembering a special pattern and being able to replicate it in proper dimension.