

# Cognitive Development Programs Improve Communication Skills - Sutapa Ray, Ph.D.

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Impaired cognition can affect our ability to transform thoughts into meaningful speech, writing, or gestures. Symptoms of cognitive communication disorders vary widely depending on the type and cause of the disorder. They can range from simple sound repetitions, such as stuttering, to occasional mis-articulation of words and complete inability to use speech and language for communications. But improving cognitive skills using Accelerating Young Minds programs can go a long way to help with communication problems, even in severely retarded children.

Here are some of the skills we help develop:

**Auditory processing:** We train listening abilities, the ability to discriminate between different sounds, overlapping sounds, social sounds, natural sounds, mechanical sounds etc. Our activities build phonemic awareness, phonetic spelling and verbal memory by increasing central auditory plasticity.

**Articulation:** AYM activities provide users many opportunities to verbalize words and articulate their thoughts about many real word objects. It is a great tool for SLP's to use to observe speech problems.

**Non-verbal Communication:** Although it is well known that most of our language abilities reside in the left hemisphere of our brain, recent research has shown the right hemisphere is also involved in the non-verbal components of communication such as prosody (tone, rhythm, inflection) and some of the pragmatics of speech (humor, sarcasm, figurative expressions, analogies etc). AYM programs provide activities to develop the right brain hemisphere to help improve some of these problems.

**Working Memory:** working memory, or the ability to temporarily store and manipulate information, is involved in five central aspects of language processing: vocabulary acquisition, speech production, reading development, skilled reading and comprehension. This is because language learning and development require the individual to follow, retain, and integrate a stream of auditory information. AYM activities train working memory processes in the brain in every mode – visual working memory, auditory working memory, verbal working memory etc. The programs also provide ample opportunities in language and math problem solving tasks to apply this important skill.

**Memory Binding:** It's a universal problem- you spot a familiar face in the crowd but can't recall the person's name. Memory binding, or the ability to match unrelated items such as faces and names, depends on two key brain structures known as the hippocampus and the prefrontal cortex that are important in learning. You need this ability to learn to label objects, verbs etc. so it is a really integral aspect of language. AYM activities enhance this ability with repeated practice and with real world images to associate meanings to words.

**Executive Functions:** Organizing our thoughts is an important part of expressive language. The brain has a special set of cognitive skills called "[Executive Functions](#)" that control this planning and organizing step in the oral and written communication process. AYM programs are filled with many different activities to help develop executive functions of the brain and improve expressive language disorders.

