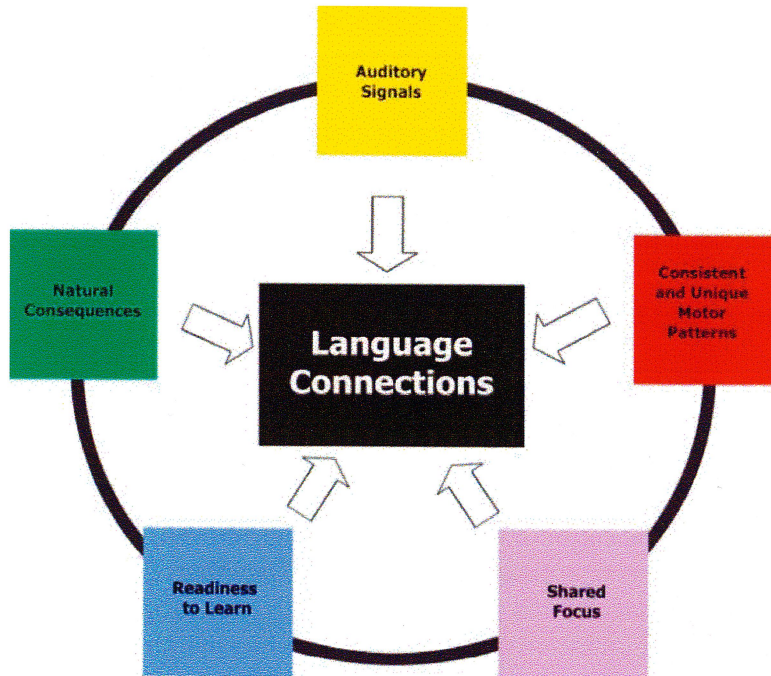


## Language Acquisition through Motor Planning (LAMP™)



Language Acquisition through Motor Planning (LAMP™) is an augmentative alternative communication (AAC) approach based on neurological and motor learning principles designed to give individuals who are nonverbal or have limited verbal abilities a method of independently and spontaneously expressing themselves through the use of a voice output communication system. The key components of the LAMP approach include **readiness to learn**, encouraging **joint engagement**, and learning language through a **unique and consistent motor plan** paired with an **auditory signal** and a **natural consequence**. There are no cognitive prerequisites for the implementation of the LAMP approach as intervention can begin at the cause and effect level and systematically build upon the stages of natural language development to complex communication. While this approach was initially developed to meet the specific needs of nonverbal individuals with autism, it can be adapted to benefit individuals with a variety of disabilities.

One of the core deficits of autism is delayed language and communication skills. It has been estimated that between 33-50% of individuals with autism will not develop functional speech (National Research Council, 2001). While there is evidence that shows AAC to be effective in improving the communication skills of children with autism, there is no consensus on what form of AAC or treatment method is the most beneficial. Some interventions currently in use

with individuals with autism focus on the perceived strengths associated with autism such as visual learning and the desire for structure.

While the LAMP approach utilizes these strengths, it also addresses the core deficits that may be affecting language delay: impaired motor skills and sensory processing differences particularly auditory processing. Neuroplasticity, the ability of the brain to change structurally and functionally in response to environmental input across the lifespan, allows for improved functioning when neural processes are addressed and decreased functioning when neural processes are neglected. The LAMP approach strives to improve language and communication by imitating the neurological process associated with typical speech development by pairing a consistent motor movement with consistent auditory feedback and a visual response.

### **Readiness to Learn & Joint Engagement**

Sensory differences make it difficult for some individuals to attend to relevant stimuli and process those stimuli to form an adaptive response which can have a significant impact on language and communication development. The LAMP approach addresses the individual's sensory needs throughout language learning opportunities so that the learner can attend and successfully participate in the communication task. Not only do sensory motor activities help to modulate an individual's level of arousal but they tend to be inherently motivating and enjoyable. Teaching vocabulary during natural, intrinsically motivating activities tends to encourage interactive communication and engagement while maintaining the individual's interest more than activities that require a particular response or compliance.

### **Consistent & Unique Motor Patterns**

The primary principle of the LAMP approach is that the motor plan used to produce a word is consistent and unique as in natural speech production. While individuals with autism may experience difficulties with motor planning, selection of icons on a device is an easier motor plan than articulation of a word. Repeating a consistent motor pattern to say a word allows the communicator to eventually produce that word automatically. The individual's need to cognitively motor plan each time they speak is decreased so that "articulating" with AAC can be quick and effortless, and attention can be directed toward the interaction. This cannot happen effectively while cognitively navigating icons, categories, and pages. When teaching the individual to produce words, the focus is on teaching the motor movement rather than understanding symbols. Motor movements learned by the emergent communicator may be extended but are not changed as vocabulary grows.

## **Auditory Signal**

Several researchers (Boddaert et al, 2004; Courchesne , 1984; and Tecchio et al, 2003) have found evidence of auditory processing delays and differences in individuals with autism. The way sounds and words are perceived directly influences an individual's ability to attend to and produce those sounds. Researchers theorize that auditory deficits play a direct role in the language delay experienced by some individuals with autism and other language-related disabilities. Individuals who have problems with auditory processing may have difficulty hearing the individual words in phrases and sentences. The pairing of a consistent motor pattern with consistent auditory output plays a pivotal role in auditory processing. Therefore, a word-based voice output device may help the individual learn to discriminate words as individual units which he can put together in various ways to create his own utterances.

A word-based system is also important for a person to be able to generate whatever he wants to say. Words can be combined in unlimited ways for expression while phrases cannot. In spoken language, words have multiple meanings. You can "turn it on," "turn it off," "turn around," "make a U-turn," and say, "my turn." Therefore, the icons on the AAC device need to allow for these multiple meanings. If there was a different icon for each use of the word "turn," the system would soon be un-navigable. Also, in natural speech, a consistent motor movement is used to produce a word/sound regardless of its meaning or part of speech.

## **Natural Consequences**

Particular motor movements are learned and repeated based on the feedback received. When communicating with AAC, one should experience the natural consequences of communication attempts. On a voice-output communication system, the individual consistently hears the word produced by a motor movement. When there is a communication partner, the partner should provide an animated reaction, the requested activity/item, or some response to enhance the meaning of the utterance. Frequently occurring core words are taught first as they can be reinforced throughout the day in many environments.

As a result of intervention using the LAMP approach, it is hoped that the individual will gain the ability to independently and spontaneously communicate whatever they want to say. Learning a language takes many years for the neurologically typical individual. LAMP is not a cure. LAMP is a method for providing an individual with a language system that can progress from first words to fluent communication. Many individuals using the LAMP approach have demonstrated success with some becoming very communicative along with increased social engagement, decreased problematic behaviors, and some demonstrating increased verbal speech. (Stuart, 2008; Pulliam, 2010; Potts, 2011; LoStracco and Collender, 2011).

# The Center for AAC & Autism

The Center for AAC & Autism was established in 2009 to train healthcare professionals, educators, and parents as well as provide a forum for sharing information. More information on the LAMP approach, success stories, and services can be found at [www.aacandatusim.com](http://www.aacandatusim.com). Our services include:

## **LAMP Workshops-**

We provide two workshop formats to train professionals, parents, and caregivers in the LAMP approach. Presenters are speech language pathologists who have years of clinical experience with individuals with autism and AAC along with success in implementing the LAMP approach. To keep cost low, we work with host sites that can offer space for the presentations. In return, the host site receives ten free registrations for their staff and the opportunity for three of their clients to receive a one-month AAC device loan to try the LAMP approach. The one day training covers the components of LAMP and implementation strategies. The day and a half training also includes consults and videotaping with up to three clients. These videotapes are used in the training to illustrate assessment, goal setting, and implementation.

## **LAMP Certification-**

This program has been designed for the development and recognition of LAMP competencies in licensed and credentialed professionals from different disciplines (such as speech/language pathologists, occupational therapists, special education teachers, and psychologists) who apply LAMP principles in working with children with limited verbal speech. Acquisition of the certificate is based on demonstration of clinical competencies through case presentations, tutoring, and training. Certified LAMP Professionals are listed on The Center's website.

## **LAMP Centers of Excellence-**

Facilities that provide AAC evaluations, outpatient therapy, education, or other professional services to nonverbal individuals in the community can be recognized as a LAMP Center of Excellence. Certification of centers is based on the number of staff who are LAMP trained and certified. Centers of Excellence are listed on The Center for AAC & Autism's website.

## **On-line Learning Opportunities-**

We provide live and on-demand training opportunities on the LAMP approach and the LAMP Words for Life app and dedicated device vocabulary at [www.aacapps.com](http://www.aacapps.com). Basic/introductory courses are offered free of charge. ASHA CEU's are available for advanced courses.

## **Networking through Social Media-**

Follow us on Facebook for helpful hints, updates, and discussions.