

## What is LAMP?

**Language Acquisition through Motor Planning (LAMP)** is a therapeutic approach based on neurological and motor learning principles. The goal is to give individuals who are nonverbal or have limited verbal abilities a method of independently and spontaneously expressing themselves in any setting.

LAMP was developed out of the clinical practices of John Halloran, MS, CCC-SLP, Cindy Halloran, OTR/L, and Mia Emerson, MS, CCC-SLP. In their interactions with nonverbal individuals with autism, they found that the following strategies provided a means for developing independent communication:

- a) Giving individuals access to core words on a speech-generating device,
- b) Teaching those words in sensory-rich activities, and
- c) Accessing each word on the device with a consistent, unique motor pattern with auditory feedback.



## What Makes LAMP Effective?

Language and social interaction may be affected by impairments in motor skills and auditory and sensory processing. 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.

The LAMP approach not only utilizes visual learning and the desire for structure, but it also addresses core deficits affecting language delay to improve spontaneous, generative communication.

LAMP strives to improve language and communication by:

- Imitating the neurological processes associated with typical speech development
- Pairing a consistent motor movement with consistent auditory feedback and a natural response while using a speech generating device.

There are no cognitive prerequisites for the implementation of LAMP as intervention can begin at the cause and effect level and systematically build upon the stages of natural language development.



## Why LAMP?

Ongoing research has shown the following improvements when LAMP strategies are used:

- Increased spontaneous communication in any environment
- Use of unique combinations of words
- Increased mean length of utterance (MLU)
- Enhanced receptive vocabulary
- Use of various communicative functions
- Increased natural vocalization

While this approach was initially developed to give nonverbal individuals with autism a means of communication, it can be adapted to benefit individuals with a variety of disabilities. Even though each individual's progress will vary, presuming competence is essential to maximizing potential. LAMP is not a

cure, but a method for providing an individual with a language system that can progress from first words to fluent communication.

### Readiness to Learn

In order to learn, an individual must be in an arousal state compatible for attending and learning. For individuals with developmental disabilities, particularly those with autism spectrum disorders, achieving and maintaining this state of “readiness to learn” can be challenging.

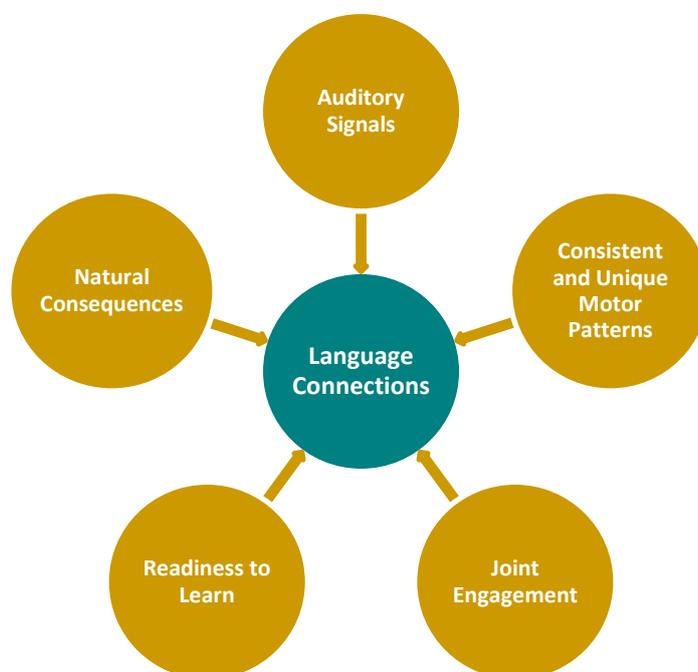
Sensory techniques to help that individual maintain an optimal level of arousal need to be incorporated into treatment sessions. Not only do sensory motor activities help to modulate an individual’s level of arousal, but they tend to be inherently motivating and enjoyable for the child.

To keep the individual’s interest, it is necessary to follow their lead in determining the vocabulary to be introduced to match their desire to communicate. Natural, intrinsically motivating activities tend to encourage interactive communication and engagement, while maintaining the individual’s interest more so than activities that require a particular response or compliance.

### Joint Engagement

When introducing an AAC device, the communication partner should follow the child’s lead and introduce and expand vocabulary around the child’s interests.

Spontaneous, child-led intervention encourages the child to communicate naturally and keeps him engaged longer. Vocabulary is generalized more readily when learned in natural activities than when taught in structured, compliance-based activities. Communication should be rewarding and not feel like work. As the non-verbal individual begins to understand the power of communication, you will typically see increased joint attention and engagement.



### Consistent and Unique Motor Patterns

The primary principle of the LAMP approach is that the motor plan a person uses to utter a word cannot be changed once it is learned. In order to communicate effectively, a person has to be able to monitor his environment, listen to another speaker, and follow the flow of the conversation. This cannot happen effectively if he has to cognitively attend to the icons, categories, and locations of vocabulary on his device.

Our brain develops motor plans to control movements that we use over and over again so that they may occur automatically without much thought. Examples of everyday activities for which we use motor plans include typing, handwriting, tying shoes, and certain aspects of driving a car.

When verbal individuals talk, they don’t have to concentrate on how to make the sounds that make up words; they concentrate on the idea of what they want to convey. The same principle holds true with an augmentative communication device as it replaces our articulators. If the motor movement required to say a word changes from one activity to another or over the course of an individual’s life as his need for vocabulary grows, the cognitive load for communication is increased.

### Auditory Signals

Particular motor movements are executed, learned and repeated based on the feedback received. On a

voice output communication device where words are accessed with a consistent motor plan, each motor plan is paired with consistent auditory output. Even when there is not a communication partner, language learning can occur as the word or words that matched particular motor movements are heard. Voice output allows the individual to “babble.”

### **Natural Consequences**

We attach meaning to words by what occurs when they are used. To teach language, the communication partner should provide an animated reaction to the utterance, provide the requested activity/or item, or somehow in some way provide an appropriate response to enhance the meaning of the uttered word. The consequence provided needs to be intrinsically rewarding for the child. Responses that are playful, fun, or involve the interests of the non-verbal individual will keep them engaged much longer than activities that are rote, drill, and compliance based.

### **Language Connections**

#### ***Words are the Building Blocks of Language***

The majority of spoken language is composed of novel combinations of words. If a person had a transcript of everything he had said during the day, it would be unlikely that any phrase or sentence would be duplicated. In order for a non-verbal individual to be able to generate whatever he wants to say, their AAC system needs to be word-based rather than phrase-based because words can be combined in unlimited ways for expression, but phrases cannot. Words allow for independent expression while phrase based systems are typically dependent someone other than the speaker to predict communication needs.

The ability to “say” individual words on an AAC device may help the child with auditory processing problems to be able to discriminate each word and its meaning rather than understanding chunks of words as a whole. A child may hear “I want computer” as a single utterance and only be able to use those words to get the computer. When individual words are taught and there is the ability to say each word individually, then the meaning of each word can be understood and then these words can be used in different ways.

#### ***Frequently used Words are Emphasized***

The most frequently occurring words in speech, core words, are emphasized and typically taught first. Core words are versatile and applicable to all environments and topics; there are more opportunities during the day to use the word “more” than the word “cookie”. Core words can also be taught and reinforced in a variety of sensory-rich activities, and allow the individual to express a range of communicative functions. Words should be taught across several activities so the meaning of the word can be generalised.

#### ***Language System***

The language system chosen should adhere to the above mentioned principles: consistent motor plans that don’t change based on the activity or the individual’s language progression, access to individual words, and the ability to access a word one way to express all the meanings of that word.

The LAMP approach was developed by utilising motor learning principles along with the Unity language system. The LAMP Words for Life language system has since been developed to adhere more strictly to the LAMP approach, and is based on the Unity language system. Both systems can be utilized when implementing the LAMP approach as they contain features important in developing automaticity and language. Core and fringe words are accessed word by word using consistent motor plans. The vocabularies offer access to a large vocabulary with few keystrokes, without the requirement of navigating through pages and folders.

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