



AAC, SLPS AND ABA: BUILDING COMMUNICATION WITH LAMP



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'SCUSE ME?



SO LET ME GET THIS STRAIGHT

I DONT HAVE TO CRY AND YELL TO GET MY COOKIE?

COMBINING APPLIED BEHAVIOR ANALYSIS AND AAC TECHNIQUES TO TEACH COMMUNICATION

- o Explore common obstacles you may encounter in the field
- o Understand the outcome based AAC approach known as LAMP)
- o Understand ABA terms and principles-Yes, you can!
- o How LAMP approach can appeal to ABA providers
- o Find common ground that can help improve communication and reduce challenging behaviors
- o Tools you can use to start collaborating and tracking progress

WHAT YOU MAY HAVE HEARD WHEN DISCUSSING AAC WITH OTHER PROVIDERS:

- o We only use _____(insert AAC software/PECS) here.
- o AAC devices discourage vocal speech
- o We only use outcome based treatments.
- o We only use ABA to teach language.
- o Gigi has a lots of language- she can label 300 pictures!
- o Sam is not ready for an AAC device until he improves his visual scanning
- o Sam has great language- he uses an I WANT strip on his PECS book/says, " I want _____, please."
- o *Note: other professionals may say these things, too! Not limited to what an ABA provider may say

TEACHING COMMUNICATION (AAC OR VOCAL SPEECH) IS VERY COMPLEX. WE OFTEN ENCOUNTER...

- Children who use rote phrases (Hi, How are you, Fine...I see red bird looking at me...I want cookie please thank you)
- Children who are prompt dependent
- Children with challenging behaviors
- Yet very few assessments look at and address these obstacles to learning (Esch, B. E., LaLonde, K. B., & Esch, J. W. (2010), Sundberg (2014))
- ▶ An ABA tool such as the VB-MAPP and LAMP AAC could address some of these obstacles to learning communication

WHAT CAN YOU DO?

- o Open a dialogue with other providers
- o Understand some ABA- based teaching principles
- o Share your knowledge of the outcome-based AAC approach (LAMP)
- o Team together to focus on the the student
- o Design a plan for the student based on ABA and LAMP approaches
- o Take good data that will show progress

WHAT IS LAMP?

Language Acquisition through Motor Planning

TEACHING CORE VOCABULARY: Top words- Toddlers

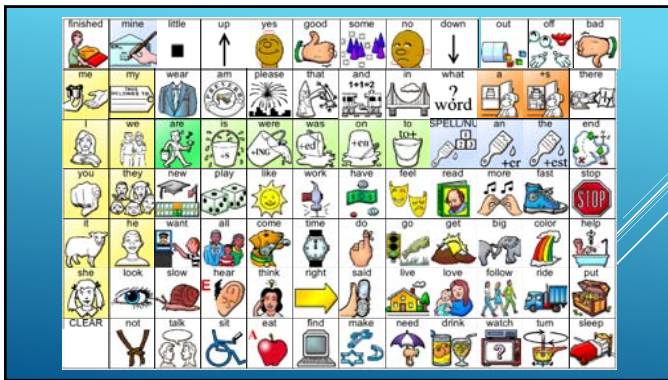
- | | |
|----------------------|----------|
| 1. a | 13. no |
| 2. all done/finished | 14. off |
| 3. go | 15. on |
| 4. help | 16. out |
| 5. here | 17. some |
| 6. I | 18. that |
| 7. in | 19. the |
| 8. is | 20. want |
| 9. it | 21. what |
| 10. mine | 22. yes |
| 11. more | 23. you |
| 12. my | |

EXCERPTS FROM "LANGUAGE FUNCTION AND EARLY GENERATIVE LANGUAGE" BANAJEE, M., DICARLO, C., & BURAS-STROCKEN, S. (2013). CORE VOCABULARY DETERMINATION FOR TODDLERS AUGMENTATIVE AND ALTERNATIVE COMMUNICATION, 2, 67 - 73.

TEACHING CORE VOCABULARY: First 30 words

- | | |
|----------------------|------------|
| 1. again | 15. little |
| 2. all done/finished | 16. mine |
| 3. away | 17. more |
| 4. big | 18. my |
| 5. do | 19. off |
| 6. down | 20. on |
| 7. get | 21. out |
| 8. go | 22. put |
| 9. help | 23. some |
| 10. here | 24. stop |
| 11. I | 25. that |
| 12. In | 26. there |
| 13. it | 27. up |
| 14. Like | 28. want |
| | 29. what |
| | 30. you |

EXCERPTS FROM "LANGUAGE FUNCTION AND EARLY GENERATIVE LANGUAGE" BANAJEE, M., DICARLO, C., & BURAS STRICKLIN, S. (2003). CORE VOCABULARY DETERMINATION FOR CHILDREN AUGMENTATIVE AND ALTERNATIVE COMMUNICATION, 2, 67-73. ADAPTED FROM HANBLES, J. (2010).



WHY LOOK AT EARLY CHILD USE OF CORE?

- o Core words are emphasized. Nouns are very important and teach specific requests, and for many students this eases frustration. However, many students get "stuck" on nouns or stuck on: I want ____ (noun), please.
- o Core words and little words can be used regardless of activity
- o Teaching Core and little words can lead to novel combinations, a.k.a. language (e.g., *turn me, get me, like that, go up, play more, you go*)

IF YOU ONLY HAD NOUNS ...

IF YOU HAD CORE WORDS...

INCLUDE BLANK IN APPENDIX CORE WORDS CAN BE USED IN ANY ACTIVITY...

Activity	Core Words to Model
Lining up to leave room	Go, out, go out, goodbye, play.
Academics	Want, like, get, put, in, on, eat, play, stop, no, more, turn, actions in books
Outdoors/ Recess	Go, fast, slow, up, down, more, play, come, get me
Arts and Crafts	Put, on, put on, make, you do, big, little, like, good, bad, you!

ELEMENTS OF LAMP APPROACH



READINESS TO LEARN

- Learners need to be in an optimal state of arousal and readiness
- Motivating activities are preferred over adult chosen activities (HIGH MO)
- Learners must be comfortable, calm and in a state that helps them share focus on an activity they enjoy (REINFORCERS)

SHARED FOCUS

Joint attention
Joint referencing

- Expand vocabulary around the learner's interests
- Activities that are initiated by the learner are going to increase joint attention and engagement (HIGH MO)

▶ <https://www.youtube.com/watch?v=hrQclfxmRsE>

NATURAL CONSEQUENCES

- Need to receive an intrinsically rewarding consequence after saying the word (REINFORCER)
- Consequence must be an animated reaction, receiving the item, having control over activity (FCT)
- Consequence relates to interests, is playful, keeps one engaged (as opposed to rote)
- NATURAL ENVIRONMENT TEACHING vs DTT
- FUNCTIONAL COMMUNICATION TEACHING (FCT)

AUDITORY SIGNAL

- Produce words via a consistent and unique motor pattern (there is only one motor path per word)
- Never need to say a word to get a word!
- Can practice words when not in presence of a listener (babble) NOT STIMMING!
- Connection between hearing word and consequence!
- Can address ECHOLALIA/SEGMENTATION ISSUES

UNIQUE & CONSISTENT MOTOR PLANS

- Speaking is a motor plan
- So are handwriting, typing, tying shoes
- We communicate well because we have automaticity
- We don't have to think about how to make a word with our articulators
- LAMP helps develop automaticity in a way that other approaches do not.
- If a motor movement changes each time we say a word in a different activity, we do not develop automaticity

LANGUAGE CONNECTIONS

- o Phrase based teaching does not help learners access words they may wish to say (**I want cookie** learned as a chunk does not teach how to combine words to produce a variety of utterances)
- o Teaching the meaning of single words helps learners with auditory processing difficulties learn word meanings and use word combinations
- o ECHOLALIA, SEGMENTATION

LANGUAGE CONNECTIONS (CONT.)

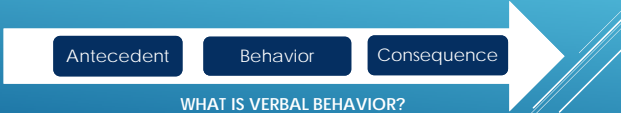
- o We do teach frequently occurring CORE words
- o We do teach Fringe words (nouns are important, but are not the main targets)
- o We teach small words (on, off, me, my, out, to, my, you)
- o Words can be produced in 1-3 keystrokes
- o Consistent motor plans are taught across activities

WHY IS LAMP BASED AAC NEEDED?

- o Vocabulary using icons with multiple meanings helps learners quickly find words they want to say.
- o Categorical or single meaning icons make learners navigate through several layers of pages
- o Categorically based vocabulary sets steer learners down a path that is not generative in nature (e.g. ,won't see **turn** unless learner says **MY** first). Navigation through several pages does not help learners develop automaticity

WHAT IS APPLIED BEHAVIOR ANALYSIS?

A set of principles used to analyze how an individual learns in the environment. An individual emits a behavior in the presence of a stimulus. There is a consequence to that behavior. That consequence can increase or decrease the likelihood that the behavior will be emitted the next time the individual encounters that stimulus.



WHAT IS VERBAL BEHAVIOR?

Very broadly, we learn verbal communication the same way we learn nonverbal behaviors. Verbal skills are controlled by the same set of variables as for nonverbal behaviors (Skinner, 1957).

ABA: WHY IS IT IMPORTANT TO UNDERSTAND?

Can't we just say request instead of mand?

- o Yes! But it is important to know why a behavior analytic approach uses specific terms.
- o Understanding specific events and functions of communication prevents confusing a mand (request) when it is an echoic (imitation), for example.
- o If we know the real antecedent controlling a response we can help avoid rote responding or less functional responses that are hard to change once established.

ABA AND VERBAL BEHAVIOR TERMS



SOME ABA PRINCIPLES:

- o **Motivating Operation (MO)**- increases reinforcer value
- o Depriving you of food is an **MO**- it increases the value of food as a reinforcer
- o **Abolishing Operation (AO)**- decreases reinforcer value
- o If you just ate a snack, this is an **AO** as it reduces the value of food as a reinforcer.
- o **MOs** are essential to teaching AAC in a LAMP approach and an ABA based Verbal Behavior Program (Sundberg, 2012).
- o **RESPONSE EFFORT**- if child views Manding as hard, the response effort kills the motivation for the item (I want it but won't want to have to ask)

SOME ABA PRINCIPLES:

- o **Conditioned MO-Reflexive**: presence of a teacher, instructional items have been established as aversive and children exhibit problem behavior in the presence of a teacher or task.
- o Important! Children in intensive programs have high demands upon them, so the mere presence of a teacher can come to be viewed as aversive!
- o *Nobody said that ABA approaches had to be aversive and no fun! This is not good ABA, nor is it good teaching or speech therapy!

VERBAL BEHAVIOR TERMS (SUNDBERG, 2008,2016)

- o **Stimulus Control**- A behavior is under stimulus control when it occurs in the presence of one particular stimulus. The antecedent becomes a signal once the person notices it. Example: traffic signals, unplugging computer at onset of a storm.

Why Important:

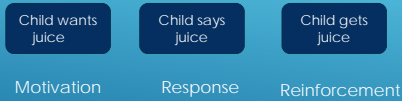
- o Many children demonstrate what looks like a request or response to a question, but the behavior is controlled by a different signal (antecedent) than we may think.

SOME ABA PRINCIPLES

- o **Reinforcement** – a consequence that provides (+) or removes (-) something, which increases the chance the behavior will occur again
- o **Positive Reinforcement:** Praise, social attention, tangible reward
- o **Negative Reinforcement:** Ending the task, an annoying sounds stops, get a break, staff goes away, work materials are removed)
- o Children with challenging behaviors have a history of being reinforced for that challenging behavior.

VERBAL BEHAVIOR: MAND (SUNDBERG, 2004)

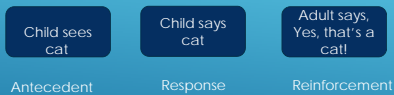
Mand: a verbal operant involving a response that is evoked by an MO and followed by specific reinforcement. It allows speakers get their wants and needs reinforced by listeners.



Motivating Operations are a huge component of both Mand Training and the LAMP Approach

VERBAL BEHAVIOR: TACT (SUNDBERG, 2012)

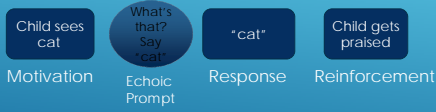
Tact: a verbal response evoked by a nonverbal discriminative stimulus and followed by generalized conditioned reinforcement.



Tacting allows a speaker to identify or describe the features of the physical environment. Early Tacts are often MAND based! Appeals to child's interests, as in LAMP approach!

VERBAL BEHAVIOR TERMS (SUNDBERG, 2008, 2016)

Echoic Imitation-a response that is evoked by a verbal discriminative stimulus that has point-to-point correspondence and formal similarity with the response. Learning to repeat the words of others is essential to language, but it can be too strong, as in "echolalia."



*Echolalia indicates poor segmentation of words (where word begins and ends and what individual words mean) LAMP teaches better segmentation (Halloran, 2014)

BEHAVIORS CAN BE ADAPTIVE OR BEHAVIOR (MALADAPTIVE)



CONSEQUENCE FUNCTION

CONSEQUENCE	FUNCTION
Reprimand	Attention
Remove Work	Escape
Praise	Attention
Gets Cheetos	Tangible
End of Worksheet	Escape
Disappointed Look	Attention
Flapping hands	Automatic

How one simple behavior chain can quickly turn into a pattern of behavior...

Antecedent	Behavior	Consequence	Function
Bus arrives early no time for breakfast	Sally arrives to school crying	Staff hurry & feed Sally breakfast	Tangible
Johnny takes Sally's toy	Sally cries	Staff give Sally back her toy	Tangible
End of Recess bell	Sally cries	Staff say, "Okay, just 5 more minutes."	Tangible
Mom says, "It's time to go to bed"	Sally cries	Mom says, "Okay, one more story"	Tangible



What is really sad in this situation?
Sally has no functional communication skills!

SO, HOW CAN WE HELP SALLY?

Bus was early; no time for breakfast

WHAT CAN SHE DO INSTEAD OF CRYING?

Staff hurry & get Sally breakfast

Tangible

- Let's teach her functional communication.
- Functional communication is when the **BEHAVIOR** (communication) is related to the **FUNCTION**.
- In the Individual Behavior Intervention Plans (IBIPs), we call it replacement behavior.

WORKING WITH A BEHAVIOR INTERVENTION PLAN TO TEACH AAC / FUNCTIONAL COMMUNICATION

Hypotheses Based on Indirect and Direct Assessment(s)	QABF (Questions About Behavioral Function) March 2013 Crying: Tangible
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Replacement Behavior:	<p>Crying Teach Sally to request items that she needs or wants using augmentative communication device.</p> <ul style="list-style-type: none"> When Sally begins to show signs of agitation, prompt her to ask for preferred items by touching the symbol on her device that correlates with the desired item. Initially reinforce all attempts to appropriately communicate her wants. Once she has begun to consistently ask for preferred items, begin to introduce a wait time. (Ex: "Thanks for asking for the train, I will get it for you in a moment,"). Begin with short wait times, and systematically increase them as Sally is more and more successful at waiting.
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COMBINE BEHAVIOR PLAN FUNCTIONS WITH WORDS TO TEACH

Antecedent	Behavior	Consequence	Function
Bus arrives early- no time for breakfast	Prompt Sally to request foods- eat or food items	Sally gets food after asking	Tangible
Johnny takes Sally's toy	Sally is prompted to say Mine	Staff give Sally back her toy	Tangible
End of Recess bell	She is prompted to say "Play" or More Play	Staff say, "Okay, just 1 more minute"	Tangible
Mom says, "It's time to go to bed"	Sally is prompted to say Read or Read More	Mom says, "Okay, one more story"	Tangible

Note: The student must first be taught these words in a fun way, as in the LAMP approach, and not during a behavioral challenge.

TEACHING FUNCTIONAL COMMUNICATION USING LAMP AND ABA: REINFORCERS

- o Assess Reinforcers: Behavior Analysts use Preference Assessments to determine interest in activities and items, and rank them in order of preference (DeLeon, XXXX).
- o Preferences can change daily so you will need to assess preferences frequently (Is there an MO, or did the child become satiated (A0)?
- o Without a high MO, student will not Mand or request, because the reinforcer has less value at that time.

TEACHING FUNCTIONAL COMMUNICATION USING LAMP AND ABA: AVERSIVES OR CHALLENGING BEHAVIORS

- o Work with your Behavior Analyst to determine the function of the challenging behaviors
- o Set up what words can be taught as replacement behaviors (Functional Communication Training)
- o Ensure your student can use core words and some fringe nouns, in a playful/engaging activity (LAMP- shared focus, natural consequence, auditory signal)
- o Students will remember the word and use it in the proper context if they learn it in a meaningful way

LAMP Component	Benefit to ABA program
Readiness to Learn: student in state that allows attending and learning, requires access to motivating activities	Student attends to stimulus presentation and to activities for longer time High MO leads to increased Mands
Unique and Consistent Motor Plan: stable word location leads to effortless communication due to low cognitive load	Minimal Response Effort, leads to increased Mands and Joint Attention
Auditory Signal: hear the word and pair it with consequences across context	Student gets immediate delivery of word and consequence, can help with Stimulus Control issues and Echolalia
Shared Focus: Child led activities will increase joint attention	Increase spontaneous Mands, Pairs adult as reinforcing
Natural Consequences: Student learns the word in meaningful context	Increases generalization of Mands across contexts



BENEFITS OF ABA AND LAMP APPROACHES TO INTERVENTION PROGRAMS

- o VB MAPP in particular (see references) and LAMP approach can address obstacles to learning language (does the learner understand what individual words mean and multiple meanings of words?)
- o Both LAMP and ABA approaches help build communication first and follow typical communication development (solid Manding repertoire of single words is taught before longer phrases or adjectives).
- o Both LAMP and VB MAPP program emphasize using Motivation to increase early communication

RESOURCES

- ▶ <https://www.prentrom.com/support/vocabulary-and-software/pass-2/downloads>
- ▶ <http://www.aacandautism.com/references>
- ▶ <https://aaclanguagelab.com/>

ACTIVITY: _____ Date: _____

CORE WORDS:  

PLAN: MODEL GO to start a game of chase, and GO to make a toy car go. PROMPT MY to get a turn with car

Name: _____

Name: _____

Name: _____

Name: _____

INCLUDE IN APPENDIX

SHOW ME THE RESEARCH

Evidence-Based Practice- "Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values." - Sackett D et al. (ASHA website)

Evidence-Based Intervention- There is strong research to indicate the treatment method is effective. Different organizations use different criteria and levels of efficacy.

Level 1: "Best Support"

- Two or more between-group design experiments demonstrating that treatment is superior to placebo or superior or equivalent to already established treatment
- ▶ Ten or more rigorous single case design experiments which demonstrate treatment efficacy

Level 2: "Good Support or Moderate Support"

- Two or more experiments showing treatment is superior to a wait-list control group
- ▶ One between-group design experiment utilizing manuals and a specified sample which demonstrates treatment is superior to placebo or superior or equivalent to previously established treatment
- ▶ Four or more rigorous single case design experiments utilizing manuals and specifying sample clients which demonstrate treatment efficacy

Level 3: "Promising Practice"

- ▶ Sound theoretical basis in generally accepted psychological principles or has been demonstrated to be effective with another target behavior.
- ▶ Substantial clinical-anecdotal literature indicating treatment value with the target behavior
- ▶ Generally accepted in clinical practice as appropriate for use with the target behavior

Effective ASD Treatments

- ABA
- Joint Attention intervention*
- Video Modeling
- Modeling-emerging
- Naturalistic Interventions*
- PECS
- Speech Generating Devices – Emerging
- No differentiation between SGDs

Research Supporting LAMP

Does not meet the strict criteria of evidence-based treatment; however, initial case studies are promising. Components are based on evidence-based practice. Stress importance of individual's data and personal progress.

- LAMP
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- LAMP Words For Life

RESEARCH ON LAMP AND LANGUAGE LEARNING: NENO ET AL

- o LAMP is listed under AAC Treatment approaches on the American Speech and Hearing Association website
- o http://www.asha.org/DRPSpecificTopic.aspx?folderid=8589042773§ion=Key_Issues
- o LAMP Approach Research
- o Neno, C., Ellawadi, A., Cargill, L., Lyle, S. & David, A. (2016). Vocabulary Development in School-Age Augmentative and Alternative Communication (AAC) Users. Poster presented at the American Speech-Language Hearing Association Annual Conference, Philadelphia, PA.
- o Summary: Researchers collaborated to design and study the effects of a fully immersive Language Acquisition through Motor Planning (LAMP)-based classroom. Eight participants were in kindergarten and first grade and spent two hours in a classroom co-taught by three speech-language pathologists and a special educator. The classroom focused on instruction of a *year* of core vocabulary words instructed across a variety of sensory and scientific/discovery activities. The immersive portion of the classroom took place in large-scale language around a SMARTBoard projecting the Words for Life language program that an adult would model the sequences of the vocabulary being used by the teacher.
- o The findings of the study indicated an upward trend in total use and duration of use of the devices, total number of words used and the frequency of different words used. The most significant data trend (compared to control classroom) is that the greatest language use was shown after the program had ended indicating that this 8-week intensive program "set the stage" for further language growth.

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SAMPLE GOALS USING FUNCTIONS OF COMMUNICATION

- o Student will direct an activity using AAC system using core words (e.g., come, stop, turn, go, put, make big)
- o AKA: MANDING FOR ACTION
- o Student will request items/activities using AAC system using core words
- o AKA: MANDING
- o Student will formulate 5 unique single word comments in a session
- o AKA: TACTING
- o Student will protest/communicate No using AAC system/ page/voice output
- o AKA: MANDING FOR AN ANNOYING STIMULUS TO STOP

VB MAPP (SUNDBERG 2004)

- o [Mark Sundberg](#)
- o <https://www.youtube.com/watch?v=if31l-YG8XU>
- o VB mapp app
- o https://www.vbmappapp.com/products_services/vbmapp_app

YOU CAN START TO USE LAMP AND ABA TO ADDRESS THESE OBSTACLES

Obstacle	LAMP Component	Benefit to ABA program
We don't use sensory integration	Readiness to Learn: student in state that allows attending and learning, requires access to motivating activities	Activities serve as reinforcers Help student attend and engage for longer periods Student attends to stimulus presentation and to activities for longer time High MO leads to increased Manding High MO reduces the likelihood that childs finds instrucional activities as aversive

YOU CAN START TO USE LAMP AND ABA TO ADDRESS OBSTACLES

Obstacle	LAMP Component	Benefit to ABA program
We only use _____ here.	Unique and Consistent Motor Plan: stable word location	I am glad you said that! would never use AAC systems that are not supported by outcome data. LAMP is an approved, outcome based approach in the ASHA Portal.
We only use outcome based treatments.	location leads to effortless communication, low cognitive load	Unique and Consistent Motor Plans means Minimal Response Effort, which leads to increased Mands and Joint attention I have seen improvements in my students' communication skills using a stable location and consistent motor plan. This idea is supported by research (share

YOU CAN START TO USE LAMP AND ABA TO ADDRESS OBSTACLES

Obstacle	LAMP Component	Benefit to ABA program
AAC devices discourage vocal speech	Auditory Signal: hear the word and pair it with consequences across context	Student gets immediate delivery of word and consequence, can help with Stimulus Control issues Auditory signal helps students learn individual word meanings and generate novel word combinations
Sam has great language- " I want _____ please."		Can help with Echolalia and rote responding as student learns the meaning of a word across contexts.

YOU CAN START TO USE LAMP AND ABA TO ADDRESS OBSTACLES

Obstacle	LAMP Component	Benefit to ABA program
Gigi has a lots of language- she can label 300 pictures!	Shared Focus: Child led activities will increase joint attention or Natural Consequences	I have noticed she does not have many spontaneous mands or requests, despite her ability to tact 300 words. Maybe we can look at her reinforcers to increase spontaneous mands using high motivation.
