

Selecting First Words to Teach Young Children with Autism




Kaufman Children's Center
for Speech, Language,
Sensory-Motor &
Autism Treatment

Kerry Peterson, MA, CCC-SLP, BCBA
Katie Fenske, MA, CCC-SLP
Brianna Morales, MA, CCC-SLP

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Learning objectives


- ▶ Review what the research tells us about which words are learned first in typical development during the first few years.
- ▶ Consider choices for selecting first words for a child who has ASD and limited to no communication.



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Learning objectives



- ▶ Evaluate the benefit of allowing neurotypical development to guide our intervention for selecting first words to teach.
- ▶ State some potential limitations of choosing first words to teach that do not follow a developmental sequence.



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Overview of communication

Speech & Language vs Applied Behavior Analysis (ABA) Terminology

 Speech & Language Pathology	 Applied Behavior Analysis
Receptive language, expressive language, articulation, WH questions, conversation, social communication, pragmatic skills	Listener skills, requesting, labeling, speech imitation (echoic), fill-ins, answering questions, conversation, social communication

Despite somewhat different terminology, we prioritize very similar communication goals for a child with ASD

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Communication goals for a young child with ASD

- 1 Receptive/understanding:** Following directions, listening/responding
- 2 Labeling/commenting:** Naming common items in their environment to show interest and gain attention from caregivers
- 3 Saying words:** Imitating the speech of others accurately so they can be easily understood and then combine to expand language
- ★4 Requesting:** Developing the skills to communicate wants/needs to caregivers

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1 Receptive/understanding language

- ▶ Responding to name
- ▶ Following simple directions (*come here, stand up, wave*)
- ▶ Attending to others or objects referred to (*where's daddy?*)
- ▶ Going and getting common objects (*bring me your shoe*)
- ▶ Identifying body parts (*where's your tummy?*)
- ▶ Pointing to pictures of common nouns, familiar people in books or photos


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2 Commenting/labeling

- ▶ Naming items when they are seen, heard or experienced (*ball, Mama, shoe, dog*)
- ▶ Vocabulary is tied to the child's environment (toys, people, places, things they encounter most often)
- ▶ Child receives reinforcement/social attention from caregivers when they label items correctly (*that's right, it is a ball!!*)
- ▶ Children use words across more than one function (example: *Mama? / Mama!*)

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2 Commenting/labeling



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3 Imitating/saying words


- ▶ Earliest words a child learns are those they imitate easily (*mama, dada, ball*)
- ▶ Child becomes better at imitating words with accuracy as they practice
- ▶ Child strives to match others who model expanded language forms (*dada > daddy > daddy go*)
- ▶ Language acquisition relies upon the child's attempts to imitate the speech modeled by others



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4 Requesting


- ▶ The ability to communicate to gain desired items and actions.
- ▶ Directly benefits the child as it results in gaining desired/needed items or actions
- ▶ Establishes the caregiver/communication partner to whom request is directed as important and necessary
- ▶ Pairs the caregiver/communication partner with reinforcement (preferred items/actions)



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4 Requesting


- ▶ Child gains desired items for demonstrating a socially acceptable behavior to indicate wants/needs
- ▶ Child does not rely on challenging behavior to have wants/needs met (crying, whining, grabbing, pulling)
- ▶ Caregiver becomes tuned into child's preferences, wants and needs within daily activities
- ▶ Many of a child's first words are requests (favorite toys, snacks, activities)



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Selecting the method for teaching a child to request


- ▶ SLPs are often the first treatment providers working with young children with limited ability to request what they want
- ▶ If a child can imitate words, adults will model words for them, then reinforce when the child imitates words to request items they want



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Alternative methods for requesting (AAC)


- ▶ If a child cannot imitate spoken words, SLPs may recommend an alternative method of teaching the child to request (sign language, PECS, AAC) until which time child's ability to imitate speech improves
- ▶ Method selected may vary depending on the SLPs training and setting (school, clinic, university)



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Alternative methods for requesting (AAC)


- ▶ Caregivers will be encouraged to carry over teaching within the home setting so the method of requesting can be practiced and generalized.
- ▶ Method selected should include parent preferences, priorities and ongoing training for all those who spend time with the child.



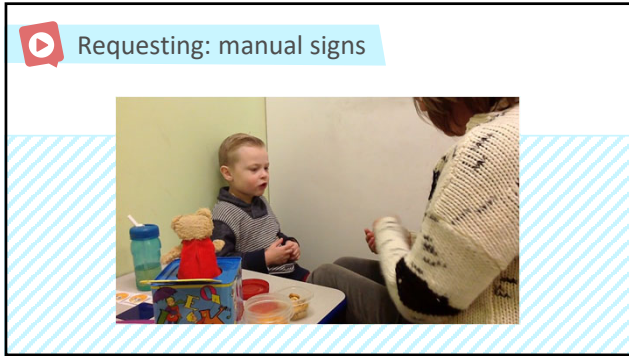
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Teaching a child to request who cannot imitate words (AAC)

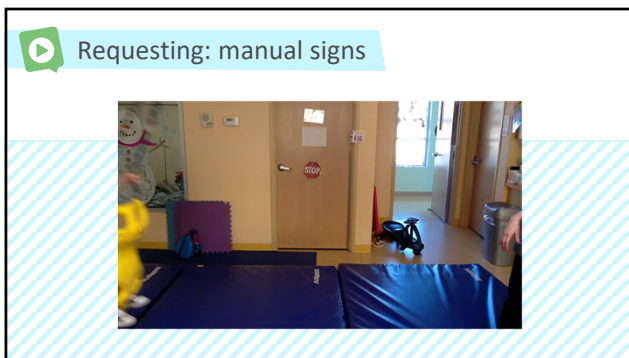
- ▶ Sign language (if child can be taught to imitate simple gestures/ signs)
- ▶ Picture Exchange Communication System (PECS) if child can discriminate
- ▶ Alternative Augmentative Communication (AAC) application or device



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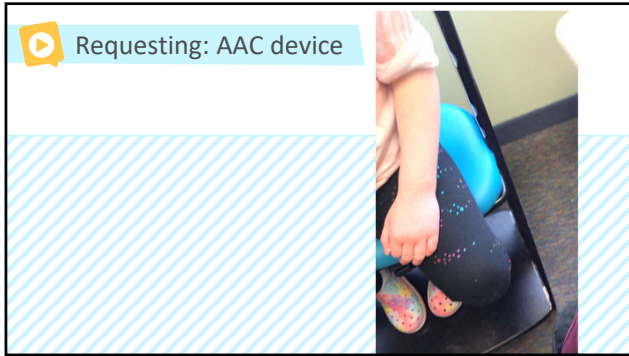
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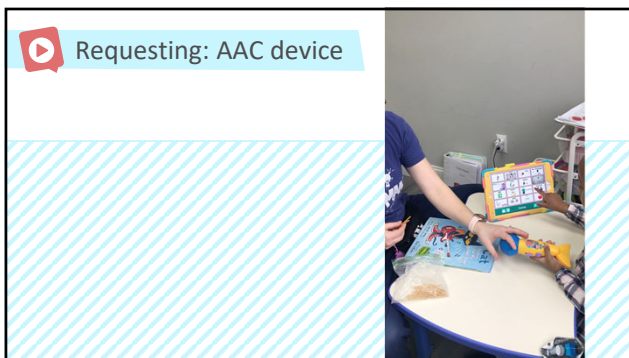
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Deciding which words/vocabulary to teach **FIRST**


- ▶ Parents, caregivers, teachers, SLPs and BCBA should determine what *first words* will best meet the child's needs.
- ▶ Significant differences of opinion may exist across providers and settings as to what words to teach first.
- ▶ Important to understand why there may be different opinions about what words to teach first.

A circular inset image showing two women, one in a red patterned shirt and one in a blue shirt, looking at a laptop screen. They appear to be in a meeting or collaborative work setting.

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Deciding which words/vocabulary to teach **FIRST**

- ▶ The first words selected to teach can have a significant impact on how and why a child communicates.
- ▶ The ability to develop additional skills such as labeling, receptive/identifying, imitating words may be affected by vocabulary or words selected to teach first.




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Deciding which words/vocabulary to teach **FIRST**

- ▶ **Specific nouns/verbs** (child's favorite, most meaningful, individualized to the child/culture)
- OR
- ▶ **General function words:** Examples: *more, please, want, finished, etc.*

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Deciding which words/vocabulary to teach **FIRST**



- ▶ How are these decisions made and why?
- ▶ Which **first words** might meet the child's communication needs best?

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**Core vocabulary:
High frequency/function words**

- ▶ Core vocabulary: comprised of the words that are used most often in expressive communication
(Yorkston et al, 1988; Beukelman, 1989; Adamson et al, 1992).
- ▶ Small set of words for any given group compared to the total words within a person's vocabulary.
- ▶ Initial sample groups to identify core vocabulary were adolescents or adults.

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**Fringe vocabulary:
Lower frequency/specific content words**

- ▶ Much larger set of words (over 1000 by age three)
- ▶ Nouns (people/places/things), verbs, describing words
- ▶ The use of fringe vocabulary is limited to the context within which it is used (e.g., food words when eating, ordering, shopping, cooking)
- ▶ Once vocabulary is established and individuals are using complex language, fringe vocabulary words are used less often than core words

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Fringe vocabulary

- ▶ Would include all the remaining hundreds of nouns (people, places and things), verbs, describing words the child had learned up to that point
- ▶ Includes all the items they can name/label
- ▶ Includes the specific items they request



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Core vs fringe vocabulary

Core words
Examples: *to, like, want, can, give, do, in, it, what, here, this, make, some, all, not*

Fringe words
Examples: *ball, car, baby, sock, shoe, coat, dog, cat, cow, cookie, cracker, cheese, jump, swing*

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Words taught most often for AAC method

Fringe words → Manual signs
Examples: *ball, cookie, milk, choo choo*
PECS

Core words → Manual signs
Examples: *want, I, that, it, more*
AAC device

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Can core vocabulary be identified among young children?

- ▶ Study attempted to identify core vocabulary for 50 toddlers (ages 24 -36 months) enrolled in childcare settings (Banajee, DiCarlo, Stricklin, 2003)
- ▶ Children were all recorded and language samples were analyzed to identify what words they used most frequently.
- ▶ Words used **most often**: *I, no, yes, it, that, my, you, more, a, go, what, some, help, all done/finished*
- ▶ These words were identified as a possible set of **core vocabulary** for preschool aged children.

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**Core vocabulary for young children:
Limitations/considerations**


- ▶ Children in the study had normal language skills for their age.
- ▶ Children were all Caucasian and from similar socioeconomic backgrounds.
- ▶ Sample was collected within a day care setting only (not home).



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**Core vocabulary for young children:
Limitations/considerations**


- ▶ Children in both studies had **already learned hundreds of words** through natural experiences and within the **meaningful context of those activities** (at home, in play, while interacting with caregivers).
- ▶ The children in the study had very different skills across many areas when compared with children with ASD who have not developed vocabulary.



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Consider sequence of early language development: 24-36 months

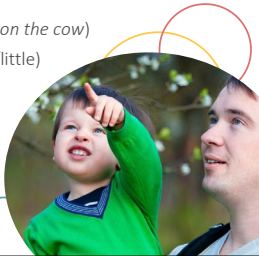
- ▶ Identifies many body parts
- ▶ Follows two-step directions (*put your cup on the table and bring me your shoes*)
- ▶ Points to common nouns by name, by feature, function and class/category (*Which one has wheels? Which one do you use to drink? Which one is an animal?*)



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Consider sequence of early language development: 24-36 months


- ▶ Identifies part/whole (*point to the tail on the cow*)
- ▶ Understands simple comparisons (big/little)
- ▶ Understands early ownership (mommy's shoe)
- ▶ 450-1000 words in their vocabulary (24 months/36 months)
- ▶ Asks, *what's that?*
And, *where's my___?*



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Consider sequence of early language development: 24-36 months


- ▶ Uses two-word negative phrases such as, *no bath.*
- ▶ Forms some plurals by adding "s" (e.g., blocks)
- ▶ Gives first name, holds up fingers to tell age
- ▶ Begins to combine nouns and verbs: *mommy open juice*
- ▶ Talks to other children as well as adults
- ▶ Carries on 'conversation' with self and dolls



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Core vocabulary for young children:
Limitations/considerations

- ▶ Young children with autism and limited to no communication skills **do not have most of these skills**



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**Core vocabulary for young children:
Limitations/considerations**

- ▶ “It is of paramount importance to consider the individual needs, interests, and personal communication style of the child who will use the system, and to ensure that any vocabulary selected is in fact useful and appropriate for that particular child.”
- ▶ “They also require individualized fringe vocabulary that is reflective of their personalities, interests, and the contexts in which they interact.” *(Vocabulary selection for Australian children who use augmentative and alternative communication. David Trembath, Susan Balandin & Leanne Togher, Journal of Intellectual and Developmental Disability, 2009)*

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**Core vocabulary for young children:
Limitations/considerations**

- ▶ “It is of paramount importance to consider the **individual needs, interests,** and personal communication style of the child who will use the system, and to ensure that any **vocabulary selected is in fact useful and appropriate** for that particular child.”
- ▶ “They also require **individualized fringe vocabulary** that is reflective of their personalities, **interests, and the contexts in which they interact.**”



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“...words identified as core vocabulary for toddlers who are not disabled, may or may not be appropriate for use by toddlers with expressive communication delays.”

(Banajee, DiCarlo, Stricklin 2003).



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Considerations for vocabulary selection:
Research should guide these decisions

- ▶ "Early words produced by children with disabilities, including children with autism spectrum disorder are similar to those produced by children with typical development" (Davidoff, 2018).
- ▶ Research shows children with developmental delays including autism develop similar vocabulary in a similar sequence as neurotypical children.
- ▶ First words for **both groups** are predominately nouns, verbs, as a result of their preferences, experiences, setting and culture

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Core 36 board

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Fringe words

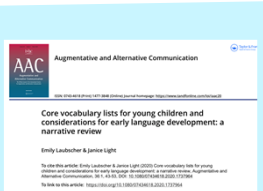
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Any questions regarding core vs. fringe words?



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Review of current research: core vocabulary




► “Core vocabulary lists for young children and considerations for early language development: a narrative review”
Laubscher & Light, *Penn State University, Augmentative and Alternative Communication*, Vol.36, 2020

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Review of current research: core vocabulary


► “Although some clinicians report that they consider or prioritize core words during the vocabulary selection process, it is not known whether an emphasis on core words will best meet the expressive vocabulary needs of early symbolic communicators.”
Laubscher & Light, *Penn State University, Augmentative and Alternative Communication*, Vol.36, 2020



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Laubscher & Light in the Department of Communication Sciences and Disorders at Pennsylvania State University posed the following question in their review:


How do the words on core vocabulary lists often used for early language learners compare to the words on a validated inventory of early communication skills of young children?



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Validated measure of first words

- ▶ MacArthur-Bates: Communicative Development Inventories (Fenson, et al 2007, Brooks Publishing)
- ▶ Parent report instrument which captures important information about children's developing abilities in early language, including vocabulary comprehension, production, gestures, and grammar.
- ▶ Normative data on over 1000 infants and 1400 toddlers



MacArthur-Bates CDI

Copyright © 2007 The Communication and Symbolic Behavior Scales Developmental Profile, Inc. All rights reserved. For more information, please contact: Communication and Symbolic Behavior Scales Developmental Profile, Inc., 1000 University Drive, University Park, PA 16802-1500

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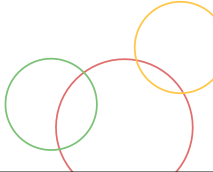
Validated measure of first words

- ▶ Reliable and validated for children both with and without developmental delays
(Dale, 1991; Dale, Bates, Reznick, & Morisset, 1989; Fenson et al., 1994; Miller, Sedey, & Miolo, 1995; Thal, O'Hanlon, Clemmons, & Fralin, 1999).
- ▶ MB-CDI Words and Gestures (skills up to 18 months)
- ▶ Words and Gestures includes common behaviors that emerge in the area of gesture, play and imitation as well as words understood and spoken

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Validated measure of first words

- ▶ MB-CDI Words and Sentences (skills up to 36 months)
- ▶ Both instruments include “understands” and “says” to distinguish between knowing a word and using a word.
- ▶ Includes meaningful signs as vocabulary



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MacArthur-Bates Communicative Development Inventories (MB-CDI)

1. Sound Effects and Animal Sounds (12)											
	understands	says	signs		understands	says	signs		understands	says	signs
baa baa	0	0	0	meow	0	0	0	uh oh	0	0	0
choo choo	0	0	0	moo	0	0	0	vroom	0	0	0
cockadoodledoo	0	0	0	ouch	0	0	0	woof woof	0	0	0
gr	0	0	0	quack quack	0	0	0	yum yum	0	0	0

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MB Communicative Development Inventory: Word Data Banks

Word bank contains data from 75,144 children and 82,983 CDI administrations, across 29 languages and 56 instruments:



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MacArthur-Bates Communicative Development Inventories (MB-CDI)

2. Animal Names (Real or Toy) (36)

	understands	says	signs		understands	says	signs		understands	says	signs
animal	0	0	0	donkey	0	0	0	mouse	0	0	0
bear	0	0	0	duck	0	0	0	owl	0	0	0
bee	0	0	0	elephant	0	0	0	penguin	0	0	0
bird	0	0	0	fish	0	0	0	pig	0	0	0
bug	0	0	0	frog	0	0	0	pony	0	0	0
bunny	0	0	0	giraffe	0	0	0	puppy	0	0	0
butterfly	0	0	0	goose	0	0	0	sheep	0	0	0
cat	0	0	0	horse	0	0	0	squirrel	0	0	0
chicken	0	0	0	kitty	0	0	0	teddy bear	0	0	0
cow	0	0	0	lamb	0	0	0	tiger	0	0	0
deer	0	0	0	lion	0	0	0	turkey	0	0	0
dog	0	0	0	monkey	0	0	0	turtle	0	0	0

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MacArthur-Bates Communicative Development Inventories (MB-CDI)

5. Food and Drink (30)

	understands	says	signs		understands	says	signs		understands	says	signs
apple	0	0	0	chicken	0	0	0	meat	0	0	0
banana	0	0	0	coffee	0	0	0	milk	0	0	0
bread	0	0	0	cookie	0	0	0	noodles	0	0	0
butter	0	0	0	cracker	0	0	0	orange	0	0	0
cake	0	0	0	drink	0	0	0	peas	0	0	0
candy	0	0	0	egg	0	0	0	pizza	0	0	0
carrots	0	0	0	fish	0	0	0	raisin	0	0	0
cereal	0	0	0	food	0	0	0	spaghetti	0	0	0
cheerios	0	0	0	ice cream	0	0	0	toast	0	0	0
cheese	0	0	0	juice	0	0	0	water	0	0	0

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MacArthur-Bates Communicative Development Inventories (MB-CDI)

3. Vehicles (Real or Toy) (9)

	understands	says	signs		understands	says	signs		understands	says	signs
airplane	0	0	0	car	0	0	0	stroller	0	0	0
bicycle	0	0	0	firetruck	0	0	0	train	0	0	0
bus	0	0	0	motorcycle	0	0	0	truck	0	0	0

4. Toys (8)

	understands	says	signs		understands	says	signs		understands	says	signs
ball	0	0	0	book	0	0	0	pen	0	0	0
balloon	0	0	0	bubbles	0	0	0	toy	0	0	0
block	0	0	0	doll	0	0	0				


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What does the MC-CDI tell us about early communication?

- ▶ Despite some variability, consistent patterns exist in early vocabulary
- ▶ English language vocabularies of young children 18-36 months are dominated by nouns (people, animal, foods, toys)
- ▶ Animal sounds, sound effects and words within social routines are produced within 50% of children among the first 50 words acquired

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How do the words on **core vocabulary** lists compare to the words on a validated inventory of early communication skills of young children?



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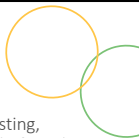
Findings

- ▶ Emily Laubscher & Janice Light, *Augmentative and Alternative Communication*, Vol.36, 2020
- ▶ **Very little overlap** of first words acquired (MB-CDI) by most young children and Core Vocabulary identified for typical toddlers/preschool aged children
- ▶ **Approximately 80% of words commonly understood and produced in early language development**, according to the MB-CDI, **are not captured within the top 100 on the ranked core word lists.**

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What does the MC-CDI tell us about early communication?

- ▶ Young children produce words for purposes of requesting, commenting, rejecting, participating in routines well before they combine words into phrases
- ▶ Function words are **not common in children's early word use** (Goodman et al., 2008).



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MB-Communicative Development inventories vs. core vocabulary FIX SLIDE




Laubscher & Light (2020) found ~18% overlap between CDI and core vocab lists

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Findings


- ▶ Core Vocabulary (high frequency function words) **do not reflect early vocabulary acquisition** or individual preferences and experiences of a young child.
- ▶ Function (Core) words **are not used by children until well after they are combining words** and using grammar markers.
- ▶ The ability to combine words relies on a robust vocabulary of nouns and verbs.



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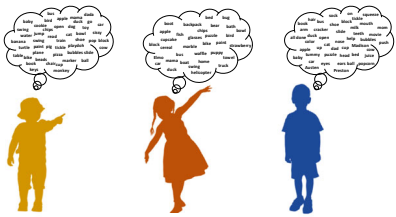
Implications

- ▶ Core vocabulary or fringe vocabulary alone will **not likely meet the individual needs of a young child with ASD with limited communication.**
- ▶ MB-CDI offers validated words when selecting early vocabulary.
- ▶ MB-CDI reflects much larger samples of children and includes words children with developmental delays and autism also learn first.



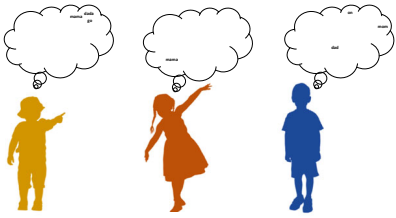
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Three case studies: First words in non-verbal children within ABA program



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Little to no alignment with core vocabulary lists





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How does this guide our practice?

- ▶ We teach child to request their favorites using whatever method is best for them (FRINGE)
- ▶ This is independent of the method of AAC we choose
- ▶ We never start with abstract, general function words (CORE)
- ▶ We wait to teach most core words until the child has a robust vocabulary to support doing so

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 Labeling with signs

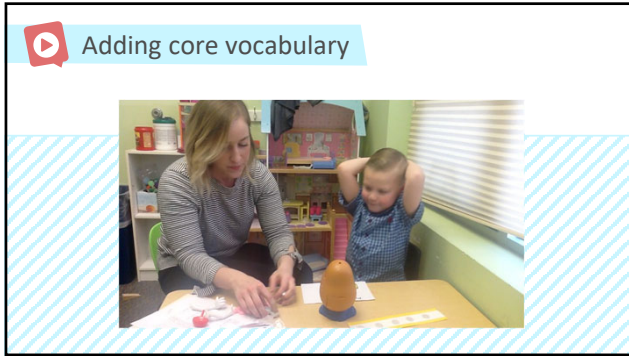


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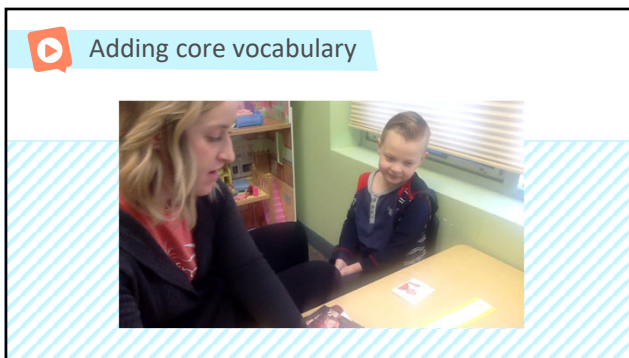
 Labeling with signs



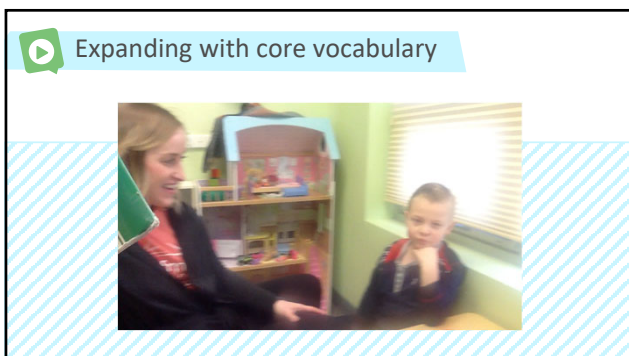
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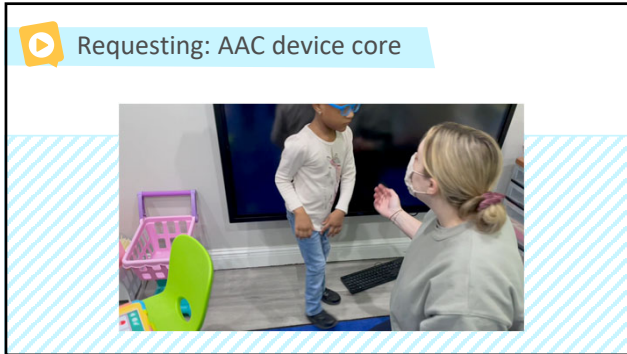
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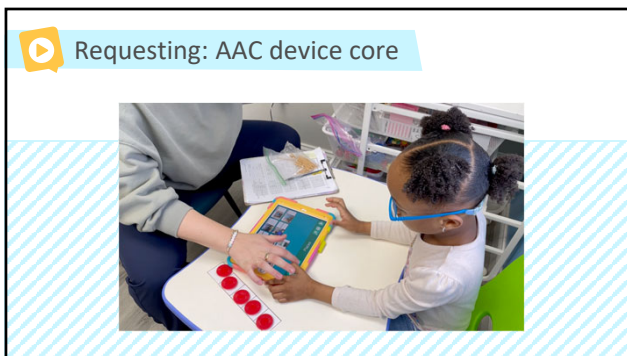
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Evidence-based practice:
Includes the integration of all

- ▶ External scientific evidence **AND**
- ▶ Clinical Experience/Expert Opinion **AND**
- ▶ Client/Patient/Caregiver/Perspectives/Values

To provide high-quality services reflecting the interests, values, needs, and choices of the individuals we serve.

(Source ASHA: <https://www.asha.org/Research/EBP/Introduction-to-Evidence-Based-Practice>)

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Problems can occur when young children are taught core vocabulary FIRST

- ▶ Saying, signing, or selecting “I want” as a generalized, memorized response without being able to request specific preferred items
- ▶ Saying, signing, or selecting “more” for **all preferred items** without the ability to request specific preferred items
- ▶ May not develop receptive/listener skills to support increased independence due to vocabulary that is too abstract
- ▶ Child is **limited in the ability to develop words for labeling**

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**Evidence-based practice:
Includes the integration of all**

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(Source ASHA: <https://www.asha.org/Research/EBP/Introduction-to-Evidence-Based-Practice>)

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Review of current research: core vocabulary

- ▶ “Teaching core vocabulary first to people with little-to-no established verbal behavior has no conceptual backing in any kind of evidence-based scientific principles.”


“Implementation of Speech Generating Devices (SGCs) Using a Behavior Analytic Framework,” Lindblad and Dower, National Autism Conference, Penn State University, 2018



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Closing statement /summary


- ▶ *First word* selection for children with ASD who do not yet communicate is important.
- ▶ Children and parents often rely on others (SLP, BCBA, teacher) to recommend *first words* for them to learn.
- ▶ Significant differences of opinion exist around selecting *first words* to teach.



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Closing statement /summary

- ▶ Decisions around *first words* should be made carefully and based upon related research.
- ▶ All members of the child's team should be working together with shared goals related to communication; therefore, there should be agreement.




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Closing statement /summary

- ▶ Parent report is more likely to capture vocabulary needs for an individual child based on their preferences, environment and culture
- ▶ Consider list of child's favorites, daily activities experiences, important people, places (nouns/verbs)
- ▶ Consider waiting to teach core vocabulary words once child has foundation of nouns/verbs/describing words in their repertoire.

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Any questions or comments 



Thank you!

Kerry Peterson • kerry@kidspeech.com
Katie Fenske • katief@kidspeech.com
Brianna Morales • briannam@kidspeech.com

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