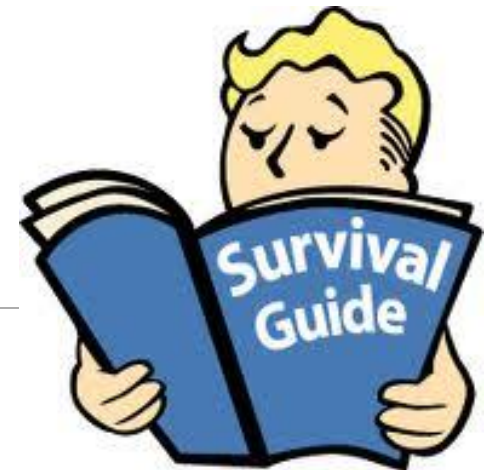


More with Core: AAC Evaluation & Intervention

MICHAEL O'LEARY, M.S., CCC-SLP



About us



- Founded 2010
- Clinical division of AAC Institute, non-profit, organization dedicated to the most effective communication for people who rely on AAC Speech-language pathology services, training and support to individuals with complex communication needs across the life span
- Annual AAC Summer Camp for children
- Overseas clinical consultations (Singapore, China, Spain)
- Katya J. Hill, Ph.D., CCC-SLP, Executive Director



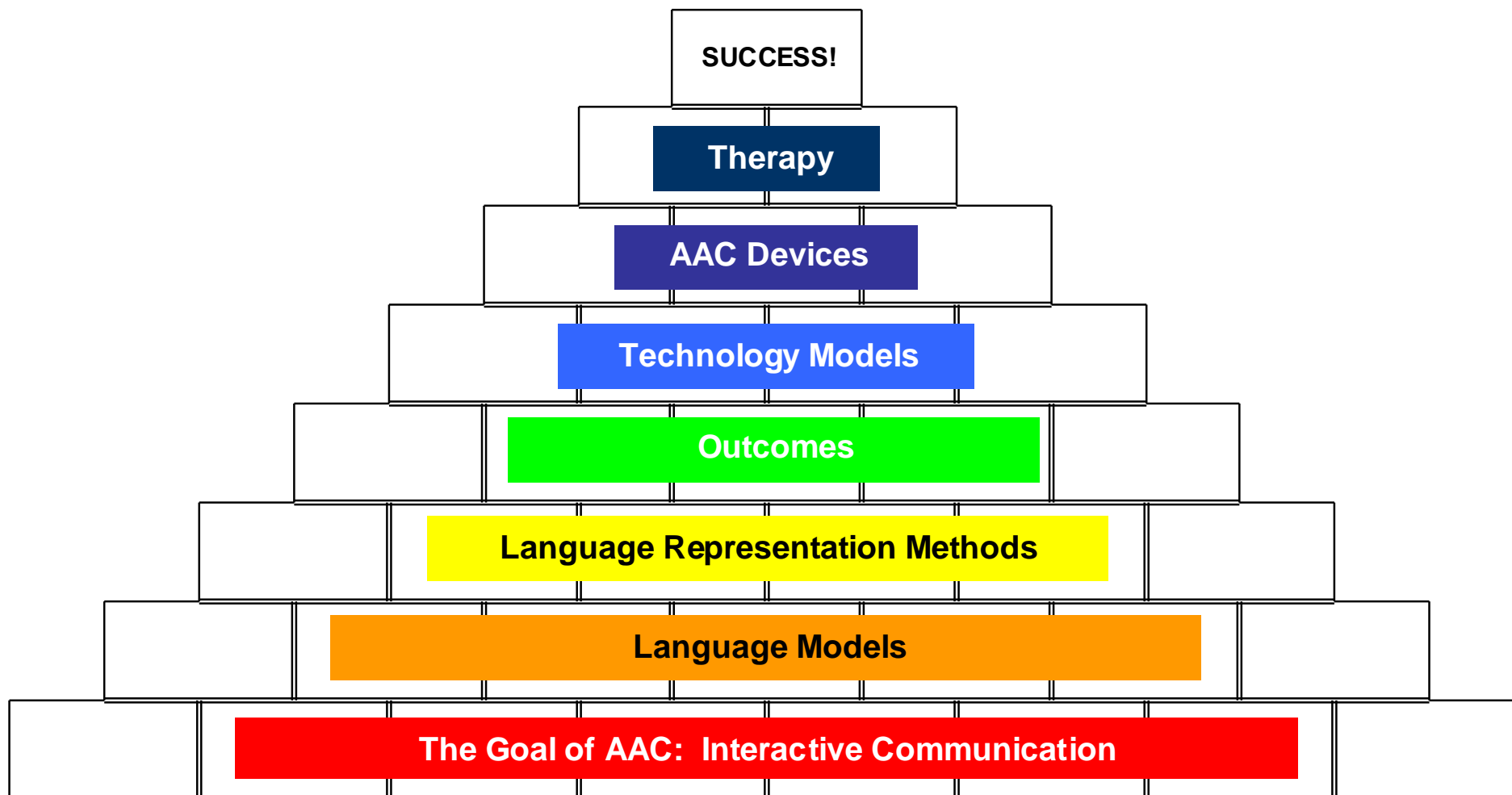
Disclosure

Michael O’Leary, and the ICAN™ Talk Clinic of the AAC Institute receive no financial or non-financial benefits from any speech generating device manufacturer or speech and language product company. All information and examples in this presentation are solely for the purpose of instruction.



Learner Objectives

1. Identify and describe at least 3 areas to evaluate for an SGD funding report.
2. Identify and describe at least 2 language transition stages.
3. Identify 3 barriers that must be controlled to improve an individual's learning trajectory for using eye gaze as an alternative access method.



AAC Language Based Assessment and Intervention Model (©Hill, 1998)

Matching Persons & AAC Technology

AAC Primary Components		
Language Representation Methods	Vocabulary	Methods of Utterance Generation
Single Meaning Pictures Alphabet-Based Methods Semantic Compaction	Core – high frequency words Extended – low or topic specific words Both vocabulary categories	SNUG (spontaneous novel utterance generation) Pre-stored sentences Multiple methods to generate messages
Secondary Components		
User Interface	Control Interface – Selection Methods	Outputs
Symbols (types/set) Display size # locations on display Color coding Navigation/# pages/displays Automaticity Human Factors	Direct Selection <i>Keyboard, head pointing, eye gaze</i> Scanning <i>Switches</i> <i>Physiological (EMG, BCI, etc.)</i> Morse Code	Speech Display Electronic/Infrared/Radio Frequency Data logging
Tertiary Components		
Peripheral and Integrated Features	Manufacturer/Vendor Resources	Clinical Service Delivery
Computer access/internet Phone access Switches & mounting systems (multiple; wheelchair) Electrode peripherals	Training (face-to-face; webinars) Technical support Repair support & loaner programs Warranties	Trained & experienced AAC professionals Evaluation & Treatment Telerehabilitation capabilities

Hill & Scherer, 2008; Hill, 2010

Speech-Generating Device Funding Report

Primary Components

1. Medical History
2. **Vision**
3. **Expressive Language**
4. **Receptive Language**
5. **Pragmatic Language**
6. **Cognition**
7. **Physical**
8. **Device Trials**
9. **Goals**

REMEMBER!

MEDICAL NECESSITY VS **EDUCATIONAL NECESSITY**



Considering AAC & AT?

Successful AAC intervention first begins with evaluation of a student's communication needs and abilities.

Successful AAC evaluation relies on multiple team members:

- Teachers/Special Educators
- Speech-Language Pathologists
- Occupational Therapists
- Vision Specialists
- Instructional Support Staff
- Parents



Communicative Competence

Language is

- Content = vocabulary
- Form = grammar
- Use = social functions

SNUG=spontaneous novel utterance generation

Domains = linguistic, social, operational, strategic



AAC Communication Competence starts with...

- Content/Semantics = Vocabulary in AAC
 - **Core**
 - Most frequently used words (85%) in spoken English conversation
 - Not easily conveyed with a picture
 - **Extended**
 - 15% of words used; usually associated with a topic

The Vocabulary of Toddlers

Banajee, DiCarlo & Stricklin (AAC 2003)

Language Analysis

- **10 words were used across all activities and environments**
- **Syntactic functions included pronouns (I, you), verbs (want) and demonstratives (this, it)**
- **Pragmatic and semantic functions included requesting action (want), negation (no), affirmation (yes), and establishing joint attention (that, it)**



WORDS
I
No
Yes/yea
My
The
Want
Is
It
That
A
Go
Mine
You
What
On
In
Here
More
Out
Off
Some
Help
All done

Toddler Vocabulary Arranged by Frequency

26 core words shown at left comprise 96.3% of the total words used by toddlers in this study.



Early LAMBaseline Inventory



Early-LAMBaseline[©]
First 100 Core Words

ICAN™ Talk
©1998, K. 2008

Identifying Information

Name: _____ Date: _____
 Parents: _____ Date of birth: _____
 Address: _____ Age: _____

 Phone: _____

 Email: _____

Background Information

School: _____ Last I.E.P.: _____
 Describe your child's educational program:

 Services Receiving: SLP OT PT

Test Results (if available)

Date	Test	Standard Score	Age Equivalent

Augmentative and Alternative Communication (AAC) Experience

Please, check and describe how your child may be using the following strategies to communicate.

- Use of natural speech:
- Use of gestures/sign:
- Communication boards:
- Voice output device:

Word Inventory

Please, check the core words that you feel confident your child understands and/or uses.

	Word	Under-stands	Signa/ Gestures	Natural Speech	Picture Symbol	Voice Output		Word	Under-stands	Signa/ Gestures	Natural Speech	Picture Symbol	Voice Output
1	after						51	here					
2	again						52	hot					
3	all						53	how					
4	all done						54	hungry					
5	all gone						55	in					
6	almost						56	is					
7	am						57	it					
8	and						58	know					
9	any						59	later					
10	ask						60	like					
11	asky						61	little					
12	bad						62	love					
13	because						63	make					
14	before						64	me					
15	big						65	mine					
16	bring						66	more					
17	bushy						67	my					
18	buy						68	no					
19	call						69	not					
20	can						70	now					
21	change						71	off					
22	cold						72	on					
23	come						73	open					
24	do						74	out					
25	different						75	play					
26	do						76	please					
27	don't						77	put					
28	down						78	read					
29	drink						79	see					
30	eat						80	she					
31	every						81	she					
32	fall						82	sit					
33	fast						83	sleep					
34	feet						84	some					
35	find						85	stop					
36	for						86	tell					
37	full						87	thank you					
38	fun						88	that					
39	get						89	there					
40	give						90	this					
41	go						91	turn					
42	good						92	up					
43	goodbye						93	want					
44	guess						94	what					
45	happy						95	where					
46	have						96	who					
47	he						97	why					
48	hear						98	yet					
49	hello/hi						99	you					
50	help						100						
	Total						Total						
							TOTALS						

Circle the estimate of how many nouns you feel your child understands? 0-25; 25-50; 50-75; more than 75

Circle the estimate of how many nouns you feel your child uses? 0-25; 25-50; 50-75; more than 75

Please list examples:



Language Representation Methods (LRMs)

How are words represented and generated?

LRMs provide the basic building blocks of content & form

All AAC systems use one or more of three language representation methods (LRMs):

1. Alphabet based methods (Orthographic Text)
2. Single Meaning Pictures
3. Semantic Compaction



Alphabet Based Methods

Spelling

Word prediction

Use of whole words (entire word is visible to be selected)



Considerations with Alphabet Based Methods

Pros:

- Spelling - simple concept
- Rate enhancements like abbreviations

Cons:

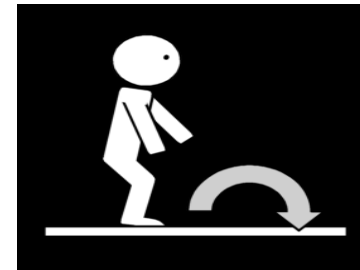
- Requires literacy skills
- Memory load
- Word prediction does not enhance speed (It's distracting)



Single Meaning Pictures

One picture = one word

Jump, jumped, and jumping all have different pictures



Considerations with Single Meaning Pictures

Pros:

- Each word requires a picture
- Beneficial for non-readers
- Easy to understand at beginning stages of language

Cons:

- Most words are *not* picture producers
- Requires training
- Each picture means one word is not natural (*Romski & Sevcik*)
- organizational issues: Avg 3-year olds have vocabulary of 1000+

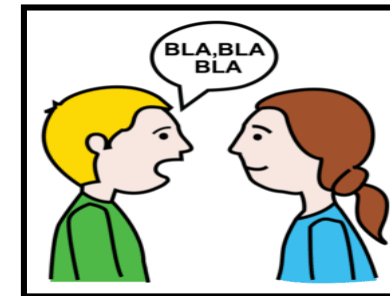
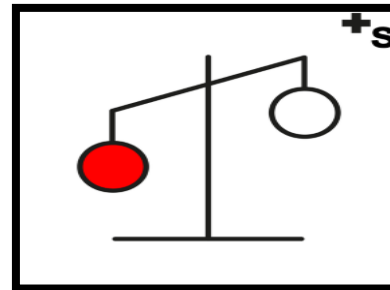


Considerations with Single Meaning Pictures

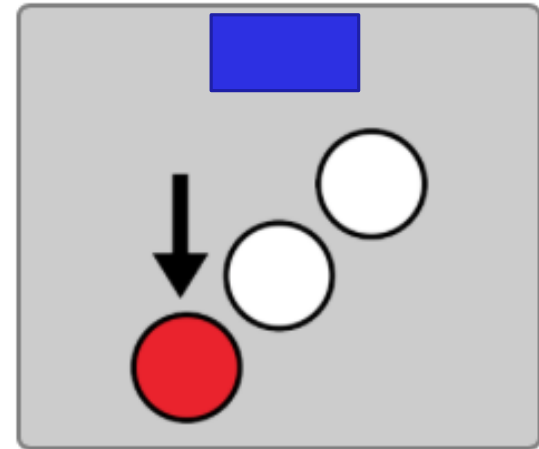
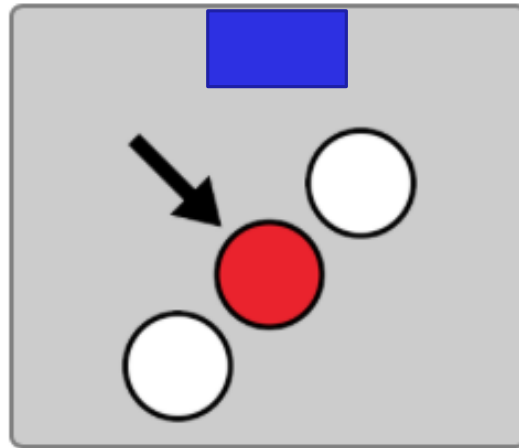
Easy to represent nouns

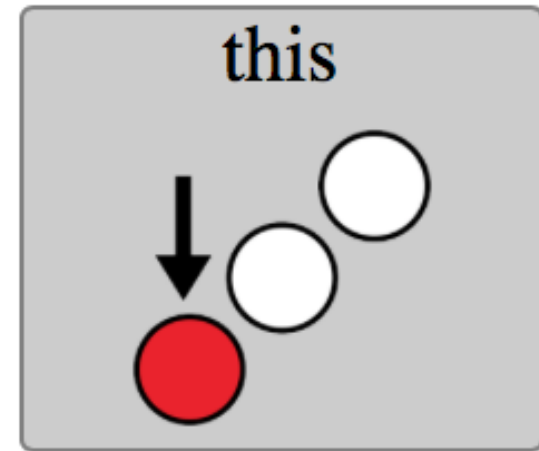
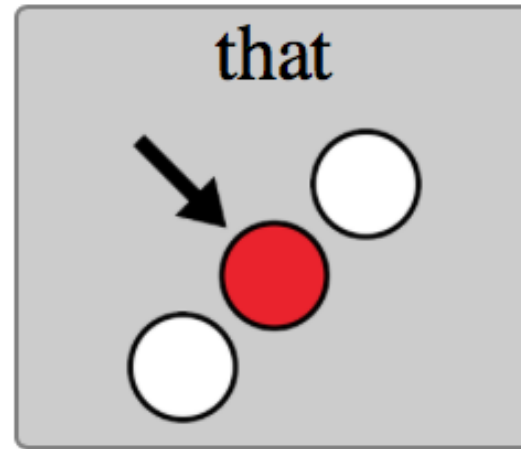


Difficult to represent pronouns, verbs, adjectives, adverbs

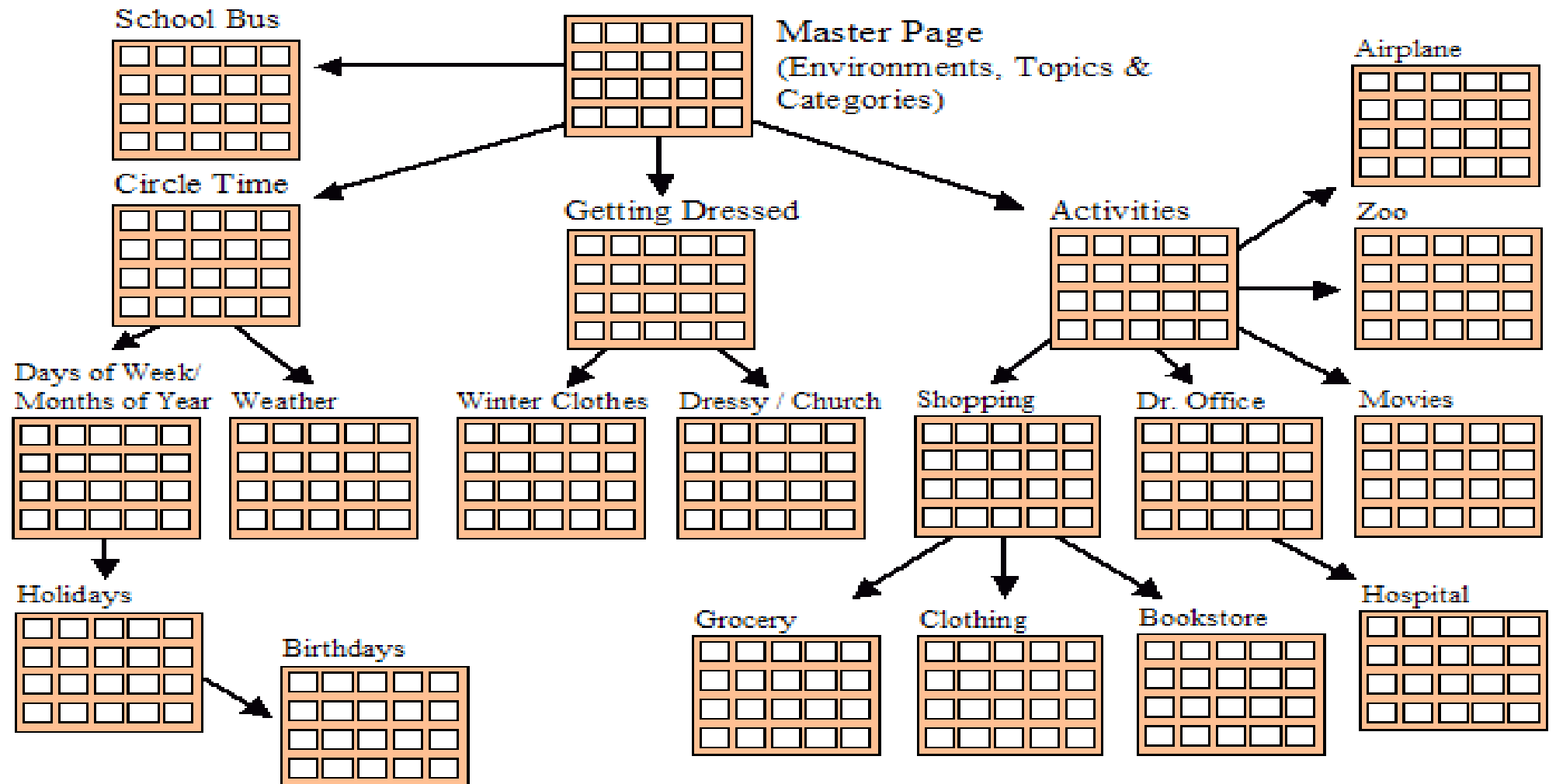


400 words need 400 pictures - increases cognitive demands





Picture/Symbol Organization



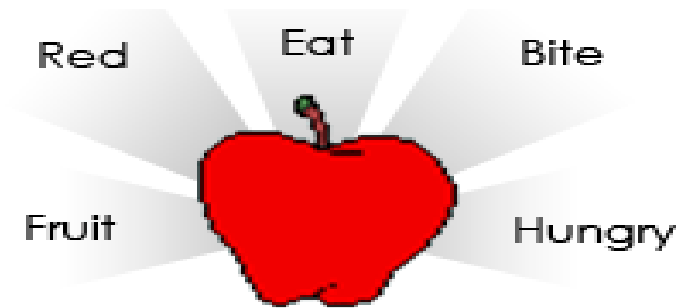
Single meaning picture approaches







- PECs
- PODD
- ProxTalker
- App examples
 - Proloquo2go
 - Autismate
- SGD software examples
 - Tobii Communicator
 - Dynavox Compass
 - TouchChat



Semantic Compaction

Use of multi meaning icons/pictures to represent vocabulary



Pronoun	Core icon	Verb	Noun	Adjective	Adverb
Yellow	White w/colored icon	Green	Apple	Lt. Blue	White w/black & white icon
					



Considerations with Semantic Compaction

Pros:

- Multi-meaning icons (MinspeakTM)
- Single overlay (minimal page navigation)
- Wide range of utility
 - From age 18 months through adult
 - From IQ of 40 up

Cons:

- Not obvious like single meaning pictures, requires training
- Patented (not universally supported)



Unity 84 Locations



09/28/18 2:59PM
(4) Unity 84 Sequenced

a A °



	VOLUME DO	VOLUME UP	SPEECH OFF	SPEECH ON	WORD FINDER	BRIGHT DO	BRIGHT UP	WORD PREDICTION OFF	WORD PREDICTION ON	REALIZE LA	MORE
								? word	a	+s	
		are	is	were	was	on	to	KEYBOARD	an	the	
											STOP
		S				E					
CLEAR			A								

More information...

AAC Institute Self-Study Program courses – CEUs

www.aac institute.org

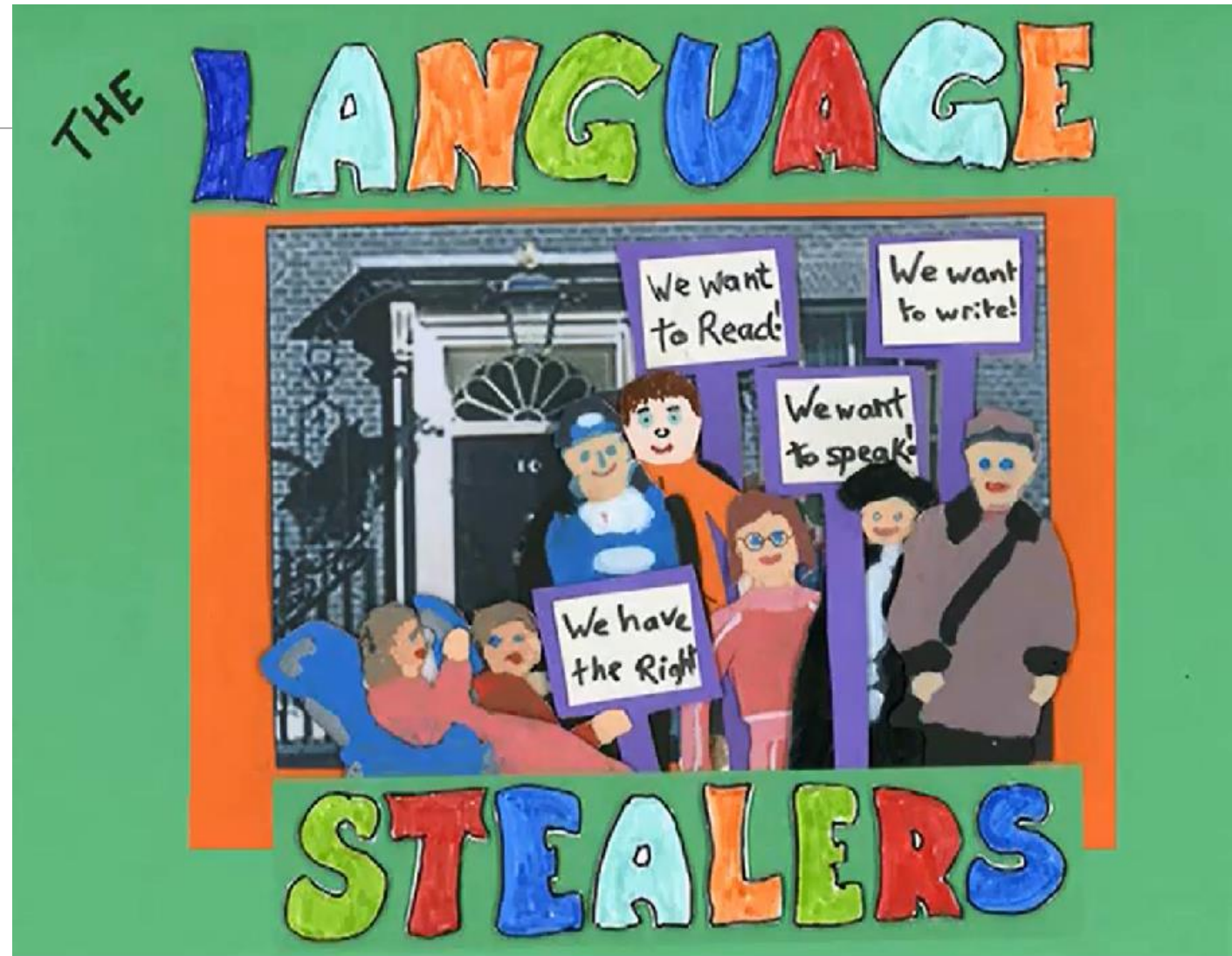


Language & Literacy Development, Classroom Participation & AAC



Don't steal my language

<https://www.youtube.com/watch?v=iOVm8q0mCYA>



Three Language Transitional Stages

1. Beginning Communicators: Pragmatics – Semantics
2. Language Learners: Semantics – Syntax
3. Using Language to Learn: Phonology – Metaphonology



Transition 1: Beginning Communicators & Core Vocabulary



Description and Characteristics of Students at this Level

Think of the typically 10-18 months

Object Permanence & Cause-effect are established

Illocutionary to locutionary communication (Bates, 1976)

Communicative intent to a conventional form of expression for the same intent

Conventional symbolic representation being established

Establishing the first vocabulary – early words!



Strategies

Adults provide a hierarchy of prompts to support meaningful communication during routines.

Adult self-talk,
parallel talk,
Expansion,
Modeling,

...allow adults to promote language development.

Naturalistic Intervention Approaches

Meaningful Interaction Routines

Joint-attention routines

Interaction-attachment

...the cues and responses that reflect a reciprocal relationship between caregiver and child.



•(McLean, et.al. 1984, 1991)

Natural Consequences

Any attempt to communicate should have natural consequences. Consequences can be auditory/verbal, visual and/or social.

For example, the child says “more,” and the adult blows more bubbles. The child sees the adult respond to “more,” hears the adult say, “more,” and sees/feels the resulting bubbles.

Natural consequences, strong in visual reactions, are critical in the language learning process.



Model based on external evidence

Romski & Sevcik (1996) *Breaking the speech barrier: Language development through augmented means*. Baltimore: Paul H. Brookes Publishing Co.

Naturalistic Teaching Strategies: Use of AAC device integrated into ongoing daily activities.

Role of Communicative Partners: partners used the device to augment their speech input to the participants.

Resource and Feedback Mechanism: regular and systematic feedback by monitoring use of the AAC device.



Joint Attention and Shared Focus

Joint attention - the ability to coordinate attention between another person and some object or event in the environment—is an important foundation for language development (Carpenter & Tomasello, 2000).

- Wetherby (1986) showed that even before speech begins, children with ASD are less likely than normal toddlers to use communication to establish joint attention for social interaction (Paul, 2007).

Shared Focus – Children must have a shared focus with their communication partner, with the objects being used in activities and with the AAC device. Designing intervention that is child directed, while therapist guided, better ensures the child will be interested in and focused during the learning activity (Halloran & Emerson, 2006).

- Follow the child's lead
- Join in with the child
- Build on the child's interest
- Carefully use barriers
- Let the child make the moves



Aided Language Stimulation

A language stimulation approach in which the facilitator points out picture symbols on the child's communication display in conjunction with all ongoing language stimulation. Through the modeling process, the concept of using the pictorial symbols interactively is demonstrated for the individual (Goosens, Crain, & Elder, 1992).



ECT: Environmental Communication Teaching Involves

INCIDENTAL TEACHING EPISODES THAT
ARE BRIEF, POSITIVE & ORIENTED
TOWARD COMMUNICATION RATHER
THAN LANGUAGE TEACHING PER SE

Setting up for snack time

Arrival in the classroom

Feeding the classroom pet

Delivering mail to the office

Making snack

Art class

Music class



Picture Exchange Communication (PECs)

PECS are typically introduced using pictures of desired objects (such as food or toys). When the child wants one of these items, he gives the picture to a communication partner such as a parent, therapist, caregiver or another child. The communication partner then hands the child the food or toy, thus reinforcing communication. Ultimately, the pictures can be replaced with words and sentence strips (e.g. I want cookies).

<http://www.iidc.indiana.edu/irca/communication/WhatisthePEC.html>

<http://www.childrenwithspecialneeds.com/pecs.html>

- (free downloads of symbols)

<http://trainland.tripod.com/pecs.htm>



Picture Exchange Communication (PECS™)

Phase	Details	Goals
1	Uses two trainers, a choice of objects, characterized by physical closeness and assistance.	Learning how to communicate
2	Uses two trainers, a communication binder and increasing independence.	Learning to be more persistent and diverse communicators.
3	Picture discrimination: discriminate between pictures and select the picture that represents the item/activity that the child wants. Start with 2 items (1 preferred, 1 not) with corresponding pictures.	Learning to choose a desired item/activity and communicate that want or need.
4	Sentence Structure: use sentence structure to make a request in the form of "I want ____." Exchange sentence strip and model complete verbal sentence by partner. No pressure on child.	Learning to construct simple sentences
5	Spontaneously requests and answer the question "What do you want?" By this phase, the exchange behavior should be automatic. No pointing cue should be required.	Learning to communicate needs and answer questions.
6	Commenting and responding to questions, such as "What do you want?," "What do you see?," and "What do you have?" Before initiating this phase, the student should use PECS™ with fluency and with multiple communication partners.	Learning to use Communication to comment and share observations and experiences with others



LAMP

Language Acquisition through Motor Planning

The Center for AAC & Autism

<http://www.aacandautism.com/lamp>



Sample Labels



Prompting Hierarchies

Least – to – more

More – to – least

Partner dependent – to - independent



Prompting Communication

Step 1: Pausing

Step 2: Open Question

Step 3a: Partial Prompt

Step 3b: Request for “verbalization” (Mand)

Step 4: Full Model

Step 5: Reinforcement/feedback



Activity #2 - pause



Questions



Transition 2: Beyond core vocabulary & language learning

Semantics – Syntax Transition

TYPICAL DEVELOPMENT

Typically 18 months to 4 years

Beyond 1st words

Fast mapping of vocabulary

Early word order transitions to more complex hierarchical relationships in syntax

Morphology (Brown's Stages)

25-30 expressive graphic symbols
AAC SPEAKER IMPLICATIONS

Varied word categories

Use of metaphors to establish *core* vocabulary

Consistency of symbol location to access words quickly

Development of motor plans to access words



A First Language, Brown's Stages

Stage	MLU	Age Range	Example
Stage I – Semantic Roles and Syntactic Relationships	1.75	18-27 mos.	<i>See mommy. See daddy. Find it. Hide it. Fix it. Mine. All gone. Up here. Over there.</i>
Stage II - Grammatical Morphemes and the Modulation of Meaning	2.25	21-30 mos.	<i>That's daddy's nose.</i>
Stage III - Modalities of the Simple Sentence	2.75	23-37 mos.	<i>Who is this? What is this? I can't swim.</i>
Stage IV - Imbedding of One Sentence within Another	3.5	26-44 mos.	<i>Now, where's a pencil I can use? That's a box that they put it in.</i>
Stage V - Coordination of Simple Sentences and Propositional Relations	4.0	27-48 mos.	<i>You snap and he comes. I did this and I did that. We went up to Foxboro and there were slides.</i>



Brown's 14 Morphemes (1973)

Grammatical Morphemes	Examples
Present Progressive	I driving
Preposition: in	Ball in
Preposition: on	Car on
Plurals	Balls, cars
Irregular past tense	Broke, fell
Possessive	Daddy's chairs, mommy's purse
Uncontractible copula	This <u>is</u> hot
Articles	A, the
Regular past tense	She walk <u>ed</u>
3 rd person present tense, regular	He work <u>s</u> ; she sleep <u>s</u>
3 rd person present tense, irregular	She <u>do<u>e</u>s</u>
Uncontractible auxiliary	Tom <u>is</u> winning
Contractible copula	He's a clown
Contractible auxiliary	She's drinking

Frequently Occurring Words

“Vocabulary-Use Patterns in Preschool Children: Effects of Context and Time Sampling”

about	cup	head	birds	for	kind	more	so	we	over	three	she	wanted
after	cut	hear	bite	from	know	most	still	we'll	paint	threw	she's	was
again	day	hello	black	found	last	move	some	we're	people	through	show	wasn't
ah	did	help	blue	get	leaves	much	somebody	well	pet	time	shut	watch
all	didn't	here	both	gets	let	must	someone	went	name	to	side	water
almost	different	here's	box	getting	let's	my	something	were	pick	today	sit	way
already	do	hi	boy	girl	lift	myself	sometimes	what	piece	together		
also	does	high	bugs	girls	like	Name	somewhere	what's	play	too		
an	doctor	hill	but	give	little	name	stop	when	please	top		
and	doesn't	him	buy	go	long	named	stuff	where	push	toys		
another	dog	his	by	goes	look	need	swing	where's	put	trees		
ant	doing	hold	bye	going	looking	never	tape	which	ready	try		
any	don't	home	call	gonna	lot	new	tell	while	really	trying		
are	done	horse	came	good	lunch	next	than	who	red	turn		
aren't	door	hot	can	great	made	nice	that	who	remember	turtles		
around	down	house	can't	green	make	no	that's	whole	ride	two		
as	drink	how	candy	guys	man	not	the	why	right	um		
at	duck	huh	car	had	many	of	their	with	room	up		
away	eat	hum	catch	hair	may	off	them	won't	run	us		
baby	eating	I	cause	hand	maybe	oh	then	would	said	use		
back	else	I'll	chair	hands	me	other	there	ya	same	used		
bad	even	I'm	come	has	mean	ok	there's	yes	saw	very		
bad	everybody	if	comes	have	messy	old	there's	yet	say	wait		
ball	everything	in	cookie	haven't	middle	on	these	you	see	want		
bathroom	face	inside	corn	he	mine	one	they	you'll				
be	fall	is	could	he's	mom	only	they'll	you're				
bean	find	isn't	couldn't	her	mommy	open	they're	your				
because	finger	it				or	thing	yours				
before	fire	it's				our	things					
being	first	juice				ours	this					
bet	five	jump				out	those					
better	fixed	jumped										
big	fly	jumping										
bird	foot	just										

Christine A. Marvin,
David R. Beukelman,
Denise Bilyeu
AAC, Vol. 10, Dec., 1994



Imitation & Sentence Completion

IMITATION

- Overt imitation of the target forms implies a potentially different learning style.
- *“The superiority of imitation teaching was unique to children with SLI, suggesting that they learn from the language input provided in teaching trials in a different manner from children without SLI (Connell & Stone, 1992).”*

SENTENCE COMPLETION

Structured teaching trials.

“A short story was prepared with accompanying illustrations. Interspersed throughout the text of the story were 20 missing words, each followed by a short underlined blank space. Each missing word represented an obligatory context for one of the targeted grammatical morphemes (Blockberger & Johnston, 2003).”



Modeling

INDIRECT

Inductive learning

Child hears the grammar construction used in a meaningful way, but is not asked to imitate the construction.

DIRECT

Aided Language Stimulation

A communication partner teaches symbol meaning and models language by combining his or her own verbal input with selection of vocabulary on the AAC system.



Recasts

Replies to child utterances that specifically incorporate a challenge to the child's current language level but maintain the child's central meaning in the adult recast.

For example,



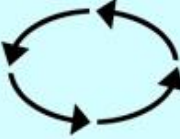













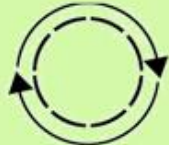



- Child lacks auxiliaries and says, "Dog running."
- Adult recast, "Yes, the dog is running."
 - (Camarata & Nelson; 1994)



Stationary, Laptray



Reading Display

I-____-me 	what 	again 	fun-funny 	trouble-problem-uh oh 
my-mine 	not-don't 	get 	that 	this 
you-your 	look-see 	read 	book 	page 
think 	turn 	want 	story 	different 

Fixed displays offer consistency as skills improve

Core row keys can be hidden as client learns vocabulary.

Activity row provides access to extended vocabulary and interaction routines.

Fixed displays can take advantage of motor planning.

High consistency with symbols and levels.



Recasts, Expansions & Extensions

AAC SPEAKER'S SYSTEM



AAC PARTNER'S SYSTEM



Parent Involvement & Multiple Environments

Re-useable vocabulary

Descriptive teaching strategies



Descriptive teaching strategies

Referential

- Requires access to an expanding body of content vocabulary for quick, word responses.
- Requires least amount of critical thinking or language production
- Highest memory demand for AAC users with minimal learning or language development
- Example: What is...,Who is..., Where is...

* Descriptive Teaching strategies

- * Requires access to core vocabulary
Requires least amount of critical thinking or language production.
- * Allows the student using AAC to focus on the information in the lesson and not on learning new pages or symbols
- * Example: define texture: look or feel of something
- * comparative v. superlative
- * Tell me about Jupiter: biggest of them all.



Rehearse, practice, model GO!



Planning and selecting activities that keep students in the safety zone before expecting 'real time' communication.

Activities matched to student's language skills and interests.

Making it fun!

Staying in the safety zone

Rehearse:

- Where is the word?
- Just selecting word/words for specific topic, situation, persons, social function

Practice:

- What do you say?
- Use words from rehearsal , but not talking in 'real' situations

Model:

- Who is your communication partner, but still not in 'real' situation
- Safe setting with partners modeling their parts – role play

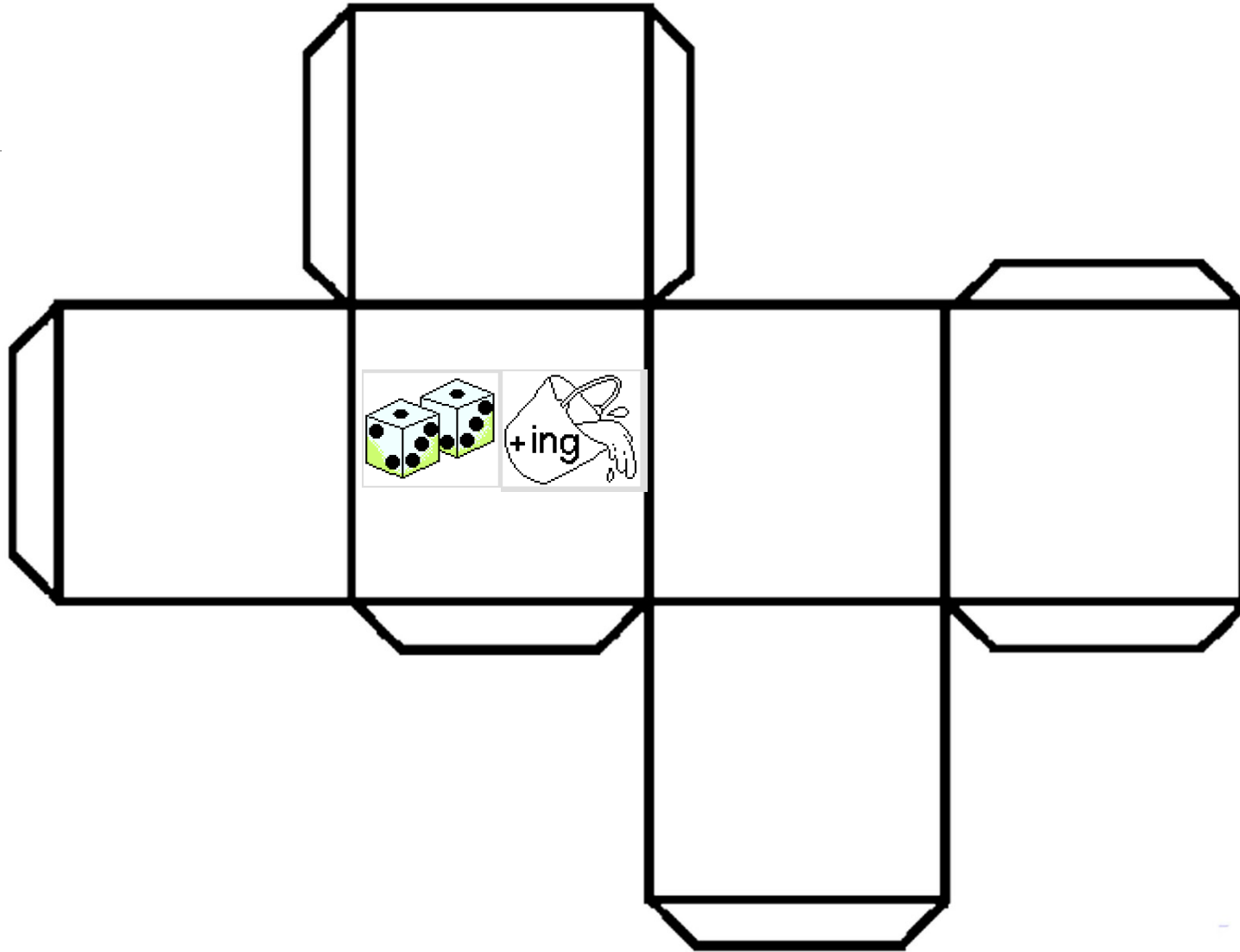


Rehearse: Tic Tac Talk (Musselwhite)

present progressive -ing

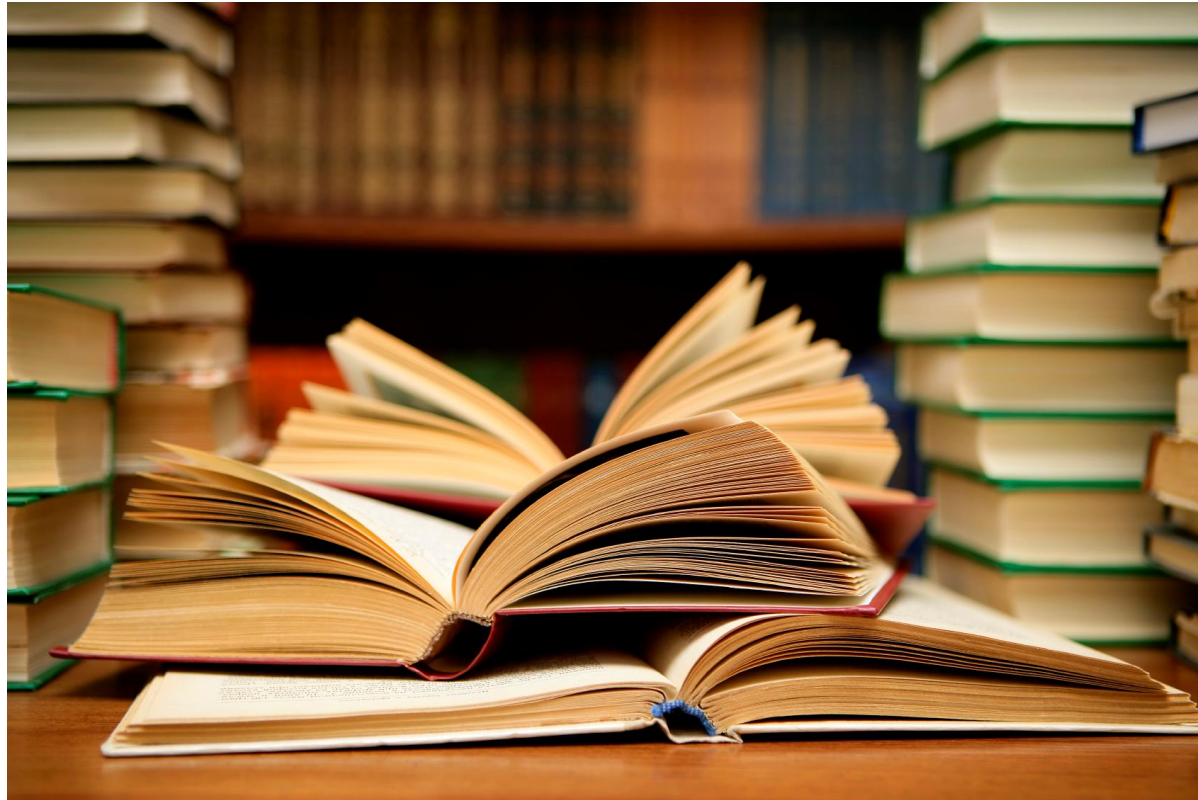
kicking	jumping	running
swinging	running	walking
AACskipping Institute	throwing	bouncing





PowerPoint books

Creating books for commenting and discussing



Ouch!



fun activities and games

Paper Dice

Tic, Tac, Talk

Good news & bad news – *comments*

Shout outs!

Tic, Tac, Talk

Holiday themes

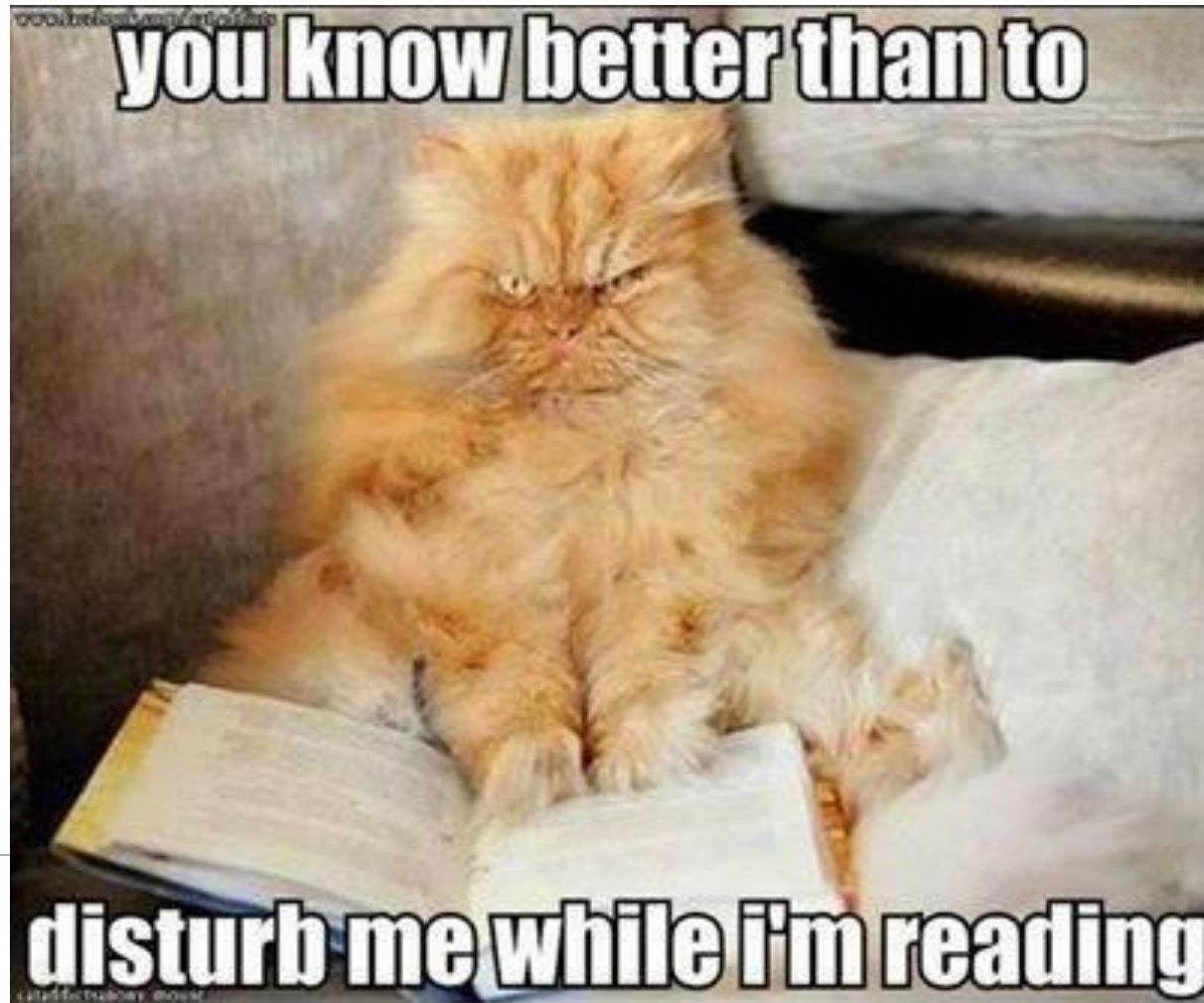
Commenting on a video

Acting out actions/prepositions



Transition 3: Building Language Fluency & Literacy Instruction





you know better than to

disturb me while i'm reading

See More Crazy Pictures & Videos on Owned.com



<http://www.engagingalllearners.ca/ip/conversation-with-caroline-musselwhite/index.php#1>

Description and Characteristics of this stage

Typically 4-6 years

Typically end of preschool

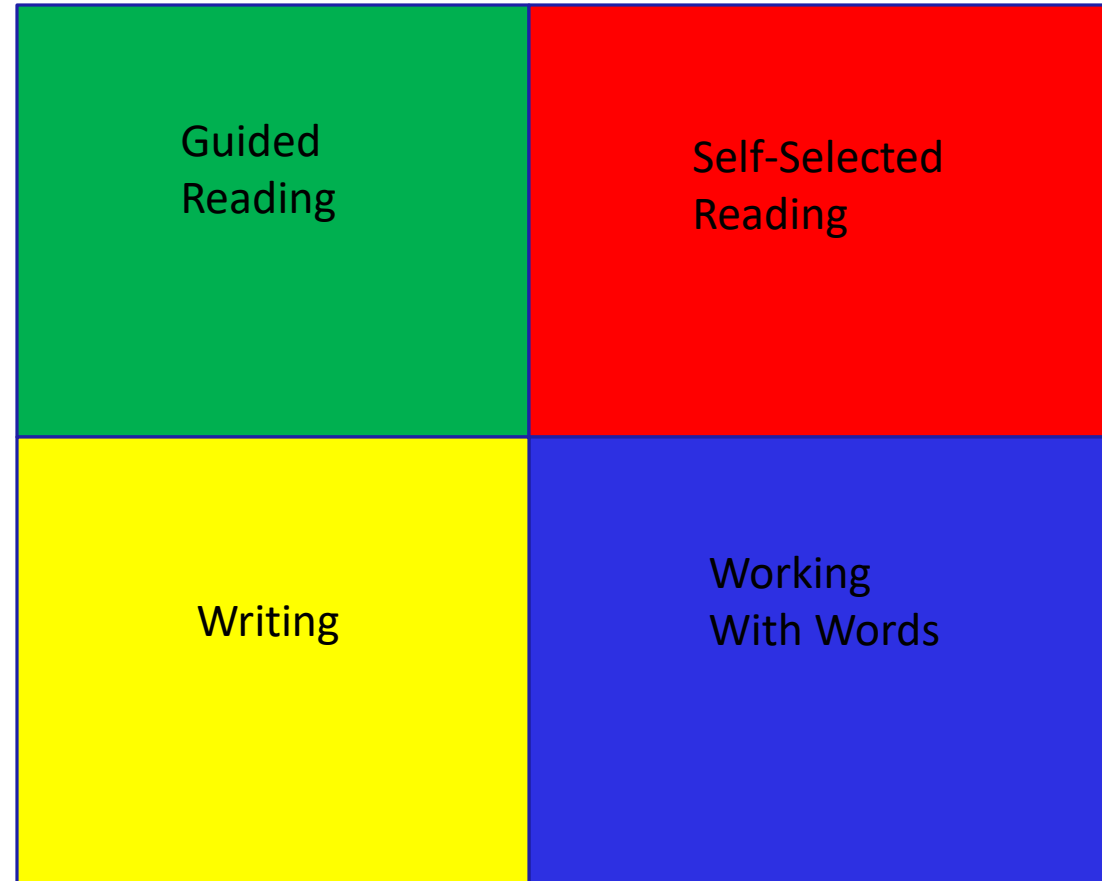
Skills in metalinguistics and phonological awareness

Literacy skills and learning to read through a decoding method



A Balanced Literacy Program to Meet the Diverse Needs of All Students

Four Block Reading Model



2 Principles of Grammar Intervention (Fey, 2003; 2008)

The specific goals of grammatical intervention should be based on the child's *functional readiness* and *need for the targeted forms*.

Immature child utterances should be systematically contrasted with more grammatically complete adult forms, using sentence *recasts*.



Let's not forget about Receptive Language

EARLY WORD COMPREHENSION

12-15 months children understand an average of 50 words

Focuses child's attention on word forms & their referents in environment

Helps create new learning opportunities

INCREASING OPPORTUNITIES

Auditory bombardment

Adult self-talk

Decrease demands on vocabulary production

Increase demands on receptive identification

Model, reinforce, but not correct

Story-telling & reading



Guided Reading

Reading aloud

Slightly above the reading level of the student

Modeling ways to approach text for comprehension or decoding unfamiliar words



Things to Model:

Listen for your inner voice

Look for a certain word type or word family

Turn on your brain and ask questions about the story

Relate the story to your life



Shared reading and AAC video



<https://www.youtube.com/watch?v=1taE51T38Lg>

Self-Selected Reading

At or slightly below current reading level

Building independent reading confidence and skills



Literacy Through Unity

A Systematic Literacy and Communication Instructional Program

- Designed to teach word recognition, decoding, spelling, and icon sequencing using *Unity* to learners with complex communication needs.
- Twenty-five lesson cycles (75 lessons) can be completed in as few as 5 weeks through 45-60 minute lessons each day.



Hanser & Erickson (2007) Integrated word identification & communication instruction

Word Identification targets: *can , not will, on I at, mine, is, be, want, it, play, and she, what, in, make, have, do, like, eat, drink, are, we, more.*

Communicate target words using AAC system: *eat, it, because, can't, it can, she can't, good, we can, do have I, game, can, bad, we are, I don't know, are we, she you like, you don't like, can't she, and read, in want, can't it.*

Word generation: spell as many words as possible in 10 minutes.

Developmental spelling: using keyboard on AAC system encode words from developmental spelling list.



Word Walls

Rainbow School, Singapore



Center for Literacy and Disabilities Studies: <http://www.med.unc.edu/ahs/clds/>

PraacticalAAC <http://praacticalaac.org/strategy/infusing-literacy-learning-opportunities-in-aac-therapies/>

Pinterest

www.pinterest.com



Q & A: Discussion





Websites:

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Thank you!

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