Literacy and Communication for Students with Complex Multiple Disabilities including Visual Impairments or Deaf-blindness
Karen Erickson & Sofia Benson-Goldberg
Center for Literacy & Disability Studies, Dept of Allied Health Sciences, UNC Chapel Hill

Literacy and Communication for Students with Complex Multiple Disabilities including Visual Impairments or Deaf-blindness

Karen Erickson, Ph.D.
Sofia Benson-Goldberg, M.S., CCC-SLP
Getting in Touch with Literacy 2019
Seattle, WA

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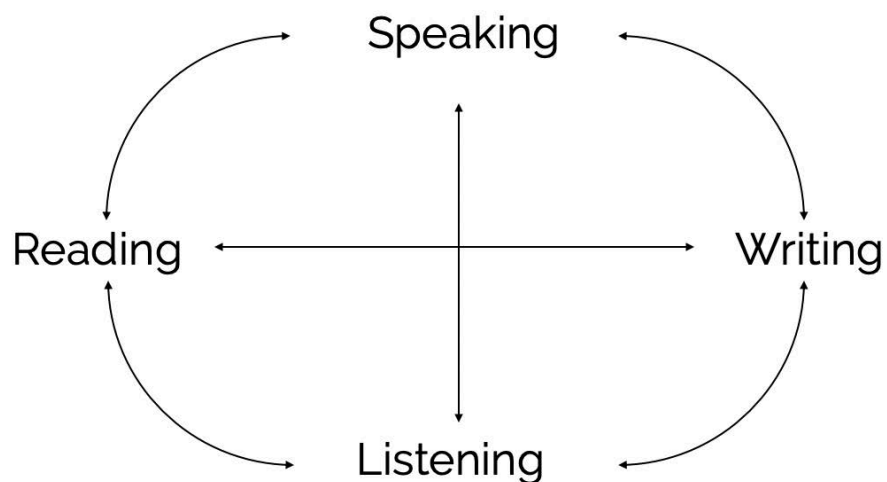Karen Erickson & Sofia Benson-Goldberg
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The Connection Between Literacy and Communication

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Speaking

Reading ← → Writing

Listening

Oral and Written Language Development
(Koppenhaver, Coleman, Kalman & Yoder, 1991
adapted from Teale & Sulzby, 1989)

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Traditional Stage Model

Listening
Speaking
Reading
Writing

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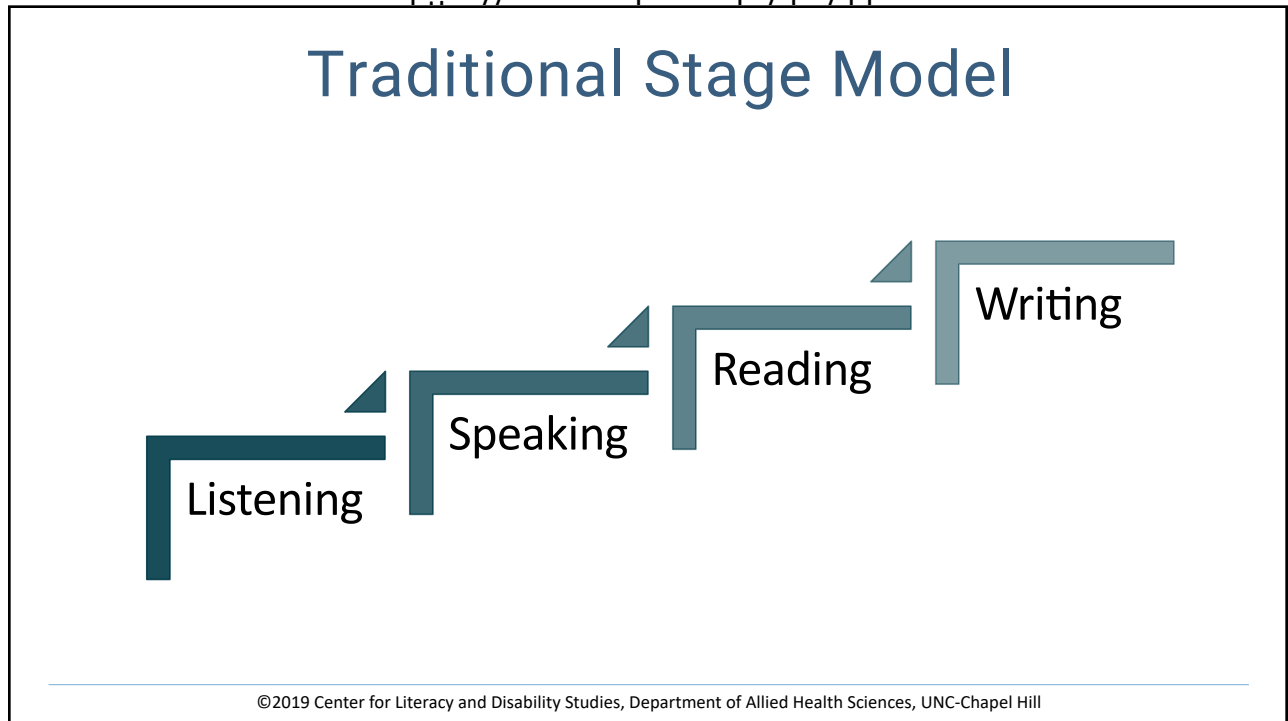
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Augmentative and Alternative Communication

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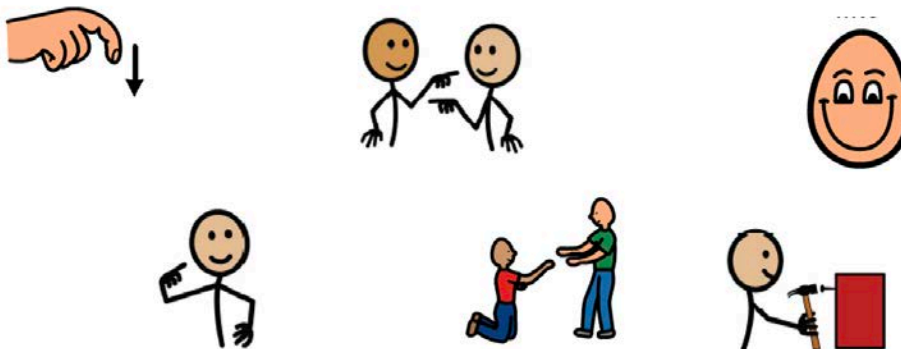
AAC Definition

Any combination of aided or unaided
communication modes including
gestures, pictures, sign language, or
voice output communication devices
used as a supplement or alternative
to oral speech.

(Glennen & DeCoste, 1997)

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Graphic Symbols

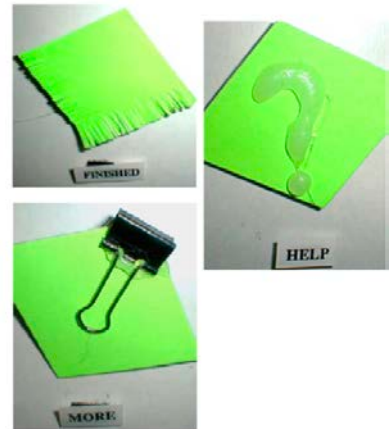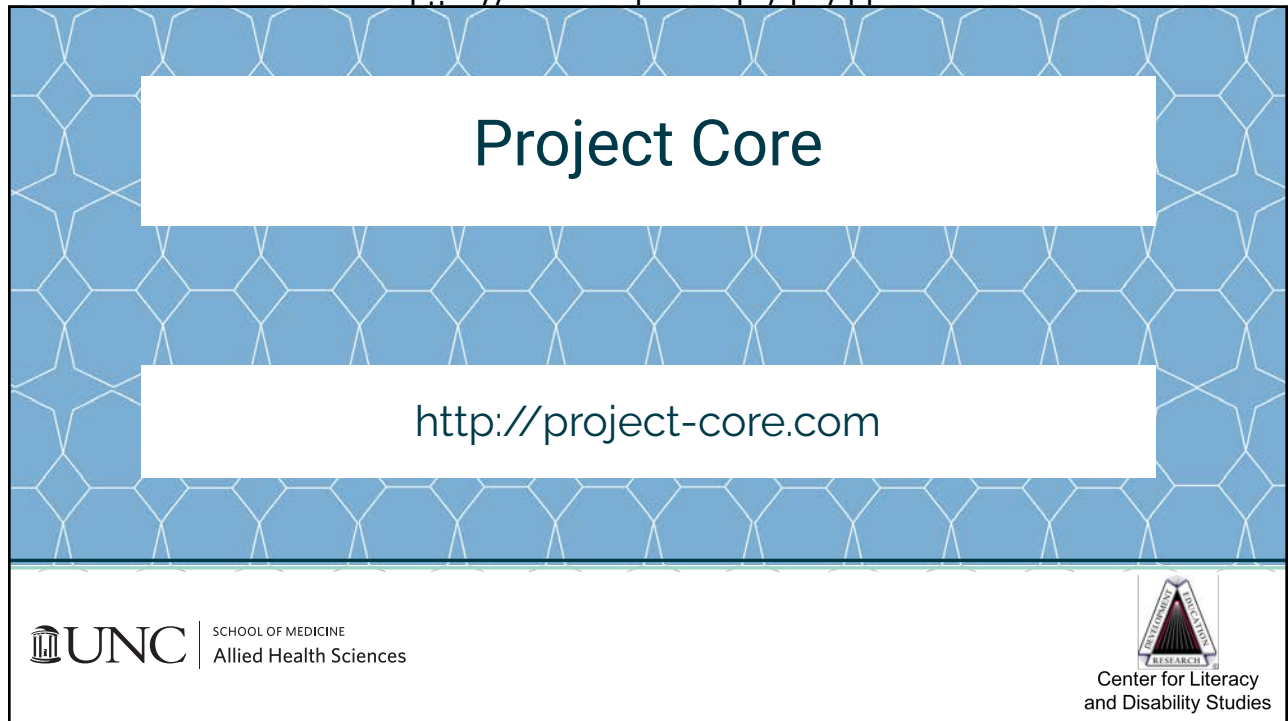©2019 Center for Literacy and Disability Studies, Department of Allied Health Sciences, UNC-Chapel Hill

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Speech Generating Devices

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Tactile Symbols

STACS

Tactile Connections

Texas School for the Blind Tactile Symbols

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Project Core

http://project-core.com

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Project Core Overview

Develop
Years 1-2

Pilot
Years 3-4

Scale-up & Disseminate
Year 5+

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What is Core Vocabulary?

- Limited set of highly useful words.
  - ~85% of spoken language is comprised of 250–350 words

- Vocabulary is primarily pronouns, verbs, descriptors, and prepositions. Very few nouns.
- Conceptual rather than referential vocabulary.

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Why Emphasize Core?

- **MANY** opportunities to teach and model each day, all day.

- Useful across settings, topics, purposes and people.

- Specialized and personalized/individualized vocabulary are important but provide far fewer opportunities to teach and model.
  - We are not replacing all of the good work being done to use vocabulary to orient and teach symbols as referents.
  - We are focused on EXPRESSIVE communication development.

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How does core relate to children with visual impairment?

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The Communication Matrix (Rowland)

Seven levels of communication

Four purposes for communication

Add complexity and symbolic forms without losing non-symbolic forms

About Concrete tangible symbols (Level 4)

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More About Symbolic Representation & Symbolism

• Joint attention on people & objects v. shared experience

• Focus on conceptual rather than representational vocabulary for expression

• Symbolism is important, but do students need to demonstrate symbolic understanding before we start using symbols?

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Universal Core Vocabulary

all	help	not	turn
can	here	on	up
different	I	open	want
do	in	put	what
finished	it	same	when
get	like	she	where
go	look	some	who
good	make	stop	why
he	more	that	you

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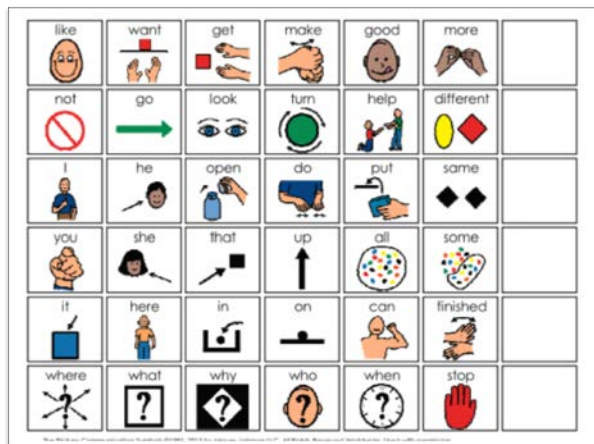Center for Literacy & Disability Studies, Dept of Allied Health Sciences, UNC Chapel Hill

Identifying the Universal Core Vocabulary

36 words

Meaningful as single words

Can be combined meaningfully

Useful across environments, activities, and interactions

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Universal Core Vocabulary Formats

36 location boards
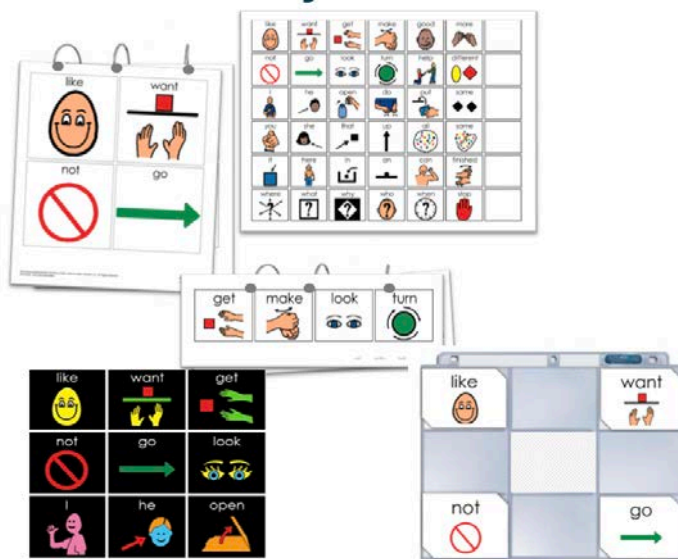
- Individual use
- Classroom use

9 location X 4 pages books

4 location x 9 pages books

- 4 square (direct select)
- 4 in-line (partner-assisted scanning)

High Saturation/Low Complexity versions for all

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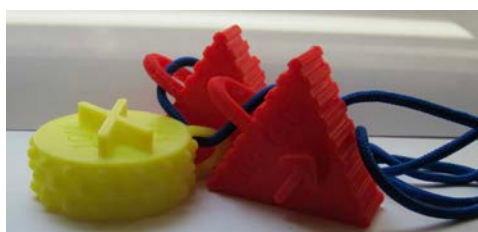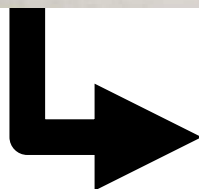
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History of the CLDS Tactile Symbols

CLDS Tactile Symbols

CLDS 3D Core Symbols

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3D Symbols from Universal Core

- Represent select core words

- Offer consistency

- Each symbol includes:

  - Unique raised element

  - Printed word

  - Braille

- 18 symbols currently available

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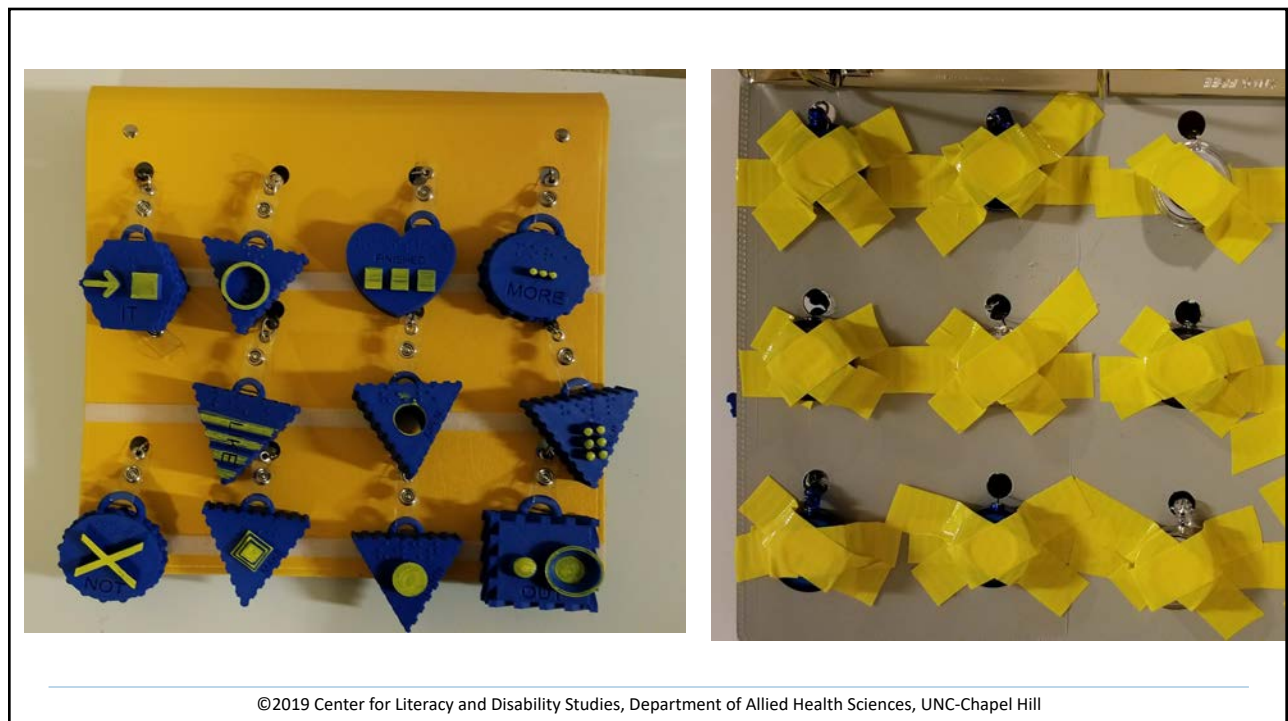
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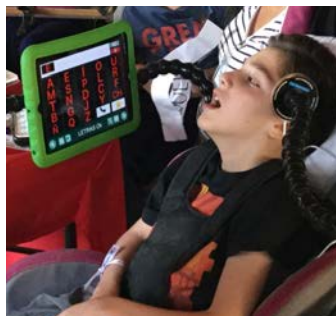Center for Literacy & Disability Studies, Dept of Allied Health Sciences, UNC Chapel Hill

Everyone communicates

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Evidence-based Practices

• Personal AAC Systems for All Students

• Attributing Meaning to Communication Acts

• Core Vocabulary

• Aided Language Input

• Naturalistic Teaching

See: http://www.project-core.com/annotated-bibliography/

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To teach AAC, good communication partners:

Attribute meaning to expressive behaviors.

Ensure **AAC systems** with useful vocabulary are available.

Encourage communication, without requiring it.

Offer **sufficient time** for students to respond.

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3D Symbol Sandwich

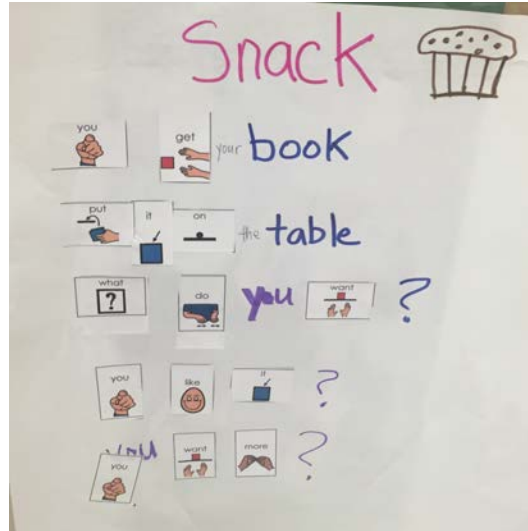Experience

Symbol + Label (spoken or signed)

Experience
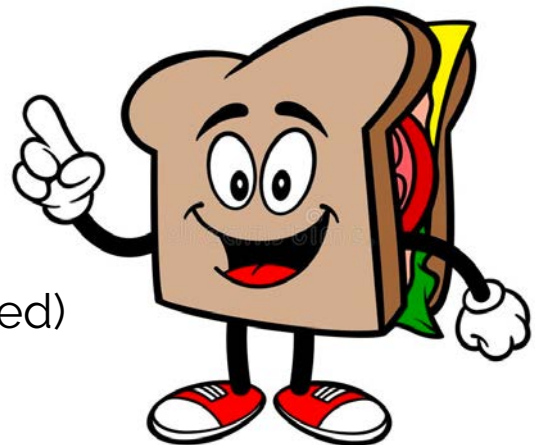
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Teaching Assistants' Contribution

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Challenges

Adults used the Universal Core vocabulary to direct student behavior.

- This was also accomplished using single symbols removed from the system

Students did not consistently have access to Universal Core vocabulary systems

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Emergent Literacy

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Tools we use

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5 Emergent Literacy Instructional Routines

- •Shared Reading

- •Predictable Chart Writing

- •Independent Writing

- •Alphabet and Phonological Awareness

- •Independent Reading

Instructional Routines Planning Form

- • Instructional planning for 5 common instructional routines.
- • Model that can be applied to other routines/lesson plans.

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Self-Reflection and Observation

- Guide teachers' self-reflection on use of the practices and Universal Core vocabulary.

- Support peer, coach, administrator observations.

- Focus teachers on what's important when you demonstrate symbol use.

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Shared Reading

"The interaction that occurs when a child and adult look at or read a book together."

Ezell & Justice, 2005

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Goals of Shared Reading

- Maximize Interaction
- Make Connections
- Comments *Not* Questions
- Students Lead
- Pause and Wait

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Personal Communication Systems

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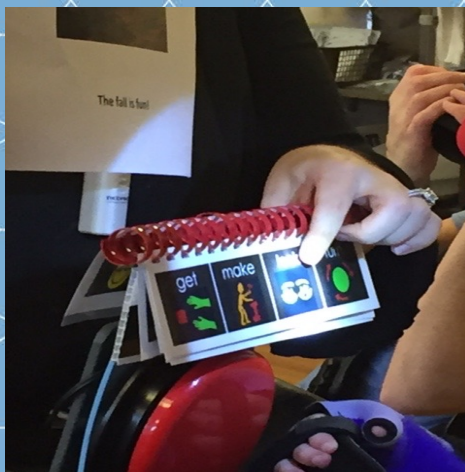Karen Erickson & Sofia Benson-Goldberg
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Maximize Interaction

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Comment using **CORE**

Keep Comments Simple

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Comment,
Pause, and
WAIT

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Comment

Ask for participation

Respond

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Comment and **wait**

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C
Ask for participation and **wait**

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C
A
Respond, repeat, add more, and **wait**

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"The interaction that occurs when a child and adult look at or read a book together." *Ezell and Justice, 2005*

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Concepts About Print

Print knowledge

- Print as an object of meaning

- Book organization and conventions

- Alphabet knowledge

- Concept of word

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Adding Print/Braille Referencing

Interactive style of reading

Adult highlights features of print

Verbal	**Non-verbal**
Comments	Pointing
Questions	Tracking Print
Requests	

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Why is print referencing important?

- Print referencing supports print awareness skills
  - Print form
  - Print function
  - Letter Identification
- It builds understandings of the relationship between spoken and written language
- Print awareness leads to higher outcomes for future reading achievement.

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Recognizing a Challenge

Providing intervention and *assessing outcomes* for children with multiple disabilities

- Without natural speech
- Physical disabilities; including impacted manual dexterity
- Vision impairments
- Complex medical histories

Historically limited access to symbol communication and interactions with print

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Addressing the Challenge

- Eye-tracking
  - Established methodology for using eye-gaze systems to track visual attention to print (see Justice & Lankford, 2002; Justice, Skibbe, Canning & Lankford, 2005; Rayner, 1985)
- Digital children's books

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CDKL5

- Present with a combination of impairments
  - Motor
  - Cognitive
  - Sensory
  - Communication
- Paucity of research

*photos retrieved from
https://www.cdkl5.com/*

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Cortical Vision Impairment (CVI)

Neurologically based vision impairment

- Characterized by:
  - Preference for specific color
  - Need or preference for movement
  - Difficulty with complexity
  - Visual field preferences
  - Non-purposeful gazing

Within CDKL5 incidence most recently reported at 75% (Demarest, 2018)

Eye-tracking set-up:
Commercial Products

PC laptop with Tobii PCEye Go

- Gazeviewer software
  - Records eye-gaze and audio

Skype

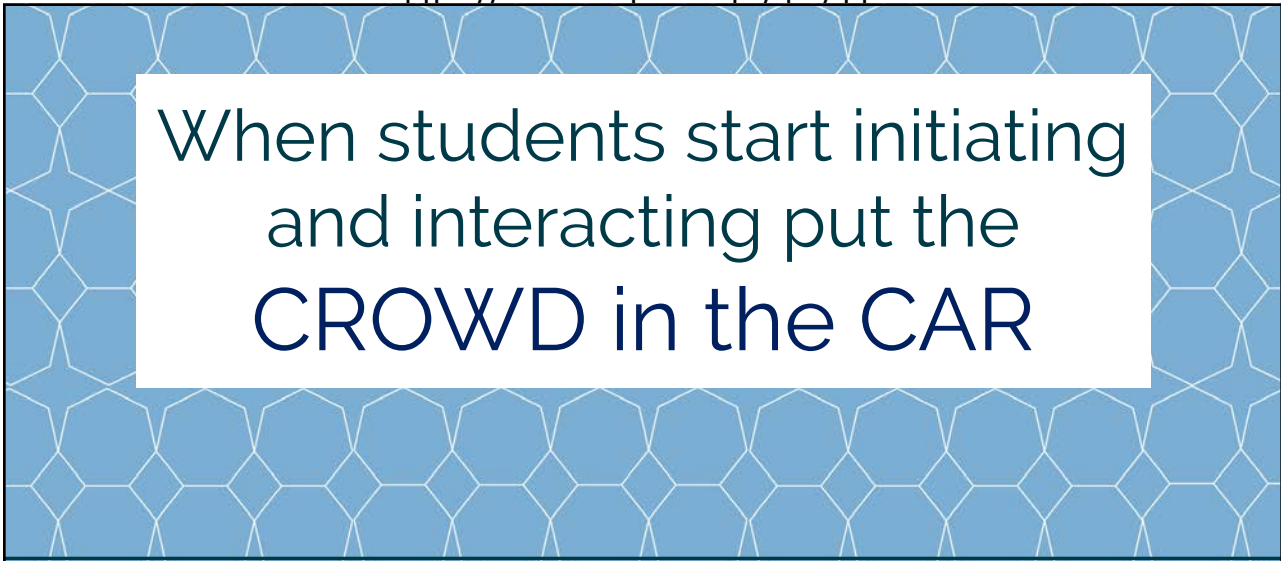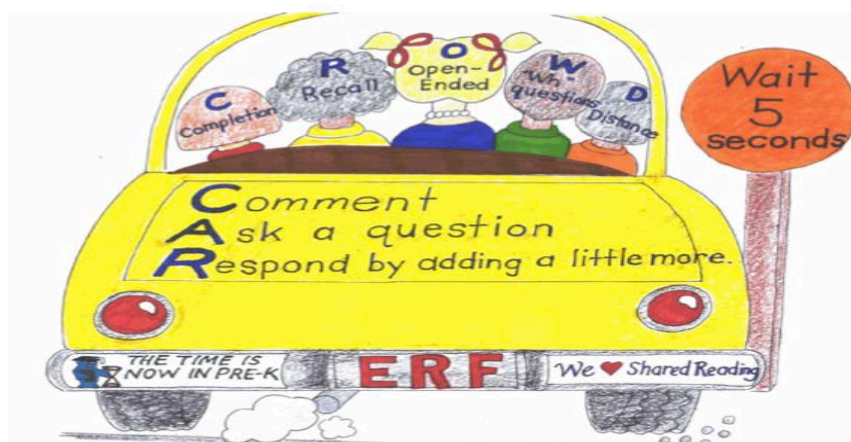**Literacy and Communication for Students with Complex Multiple Disabilities including Visual Impairments or Deaf-blindness**
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Tarheel Reader

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Procedures

Baseline	Parent Intervention	Parent Implement Print Referencing
Read 6 unfamiliar books from Tarheel Reader	1:1 intervention with researcher over skype	Read more 6 unfamiliar books from Tarheel Reader
2 weeks	30 minutes	2 weeks

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"You can feel the wind and the breeze.
You like the breeze!"

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After Print Referencing

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Garlic grows in the ground.

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When students start initiating and interacting put the CROWD in the CAR

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Put the CROWD in the CAR

Corinne Gandy Watson, 2008

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CROWD

Completion

Recall

Open-Ended

Wh- Questions

Distancing

Rotate through them
as it makes sense!

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Completion

- Leave a blank at the end of a sentence and child fills it in.

- These are typically used in books with rhyme or books with repetitive phases.

- Example, "Brown bear, brown bear, what do you see? I see a white dog looking at ____," letting the child fill in the blank with the word *me*.

- Completion questions help students begin to understand the structure of language in books.
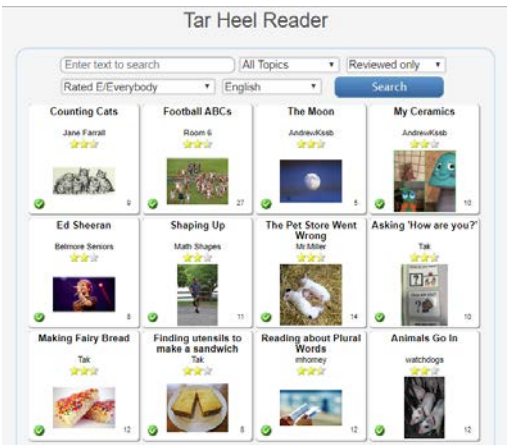
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Recall

Questions about what happened in a portion of the book that has just been read.

Example, "*Tell me what the little truck did*."

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Open-Ended

Questions that do not have specifically right/wrong answers.

Usually focus on the pictures in books.

Example, "*Tell me what's happening in this picture*."

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Wh- Questions

Questions that begin with what, where, when, why, and how.

Typically focus on the pictures in books.

Example, "*What does the man have*?"

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Distancing

Questions that relate what is in the book to experiences outside the book.

Form a bridge between books and the real world.

Example, "You saw animals at the farm. What animal did you see at the farm?"

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Selecting Books

- Possibility of rereading
- Illustration Independent
- Language complexity
- Interest-level

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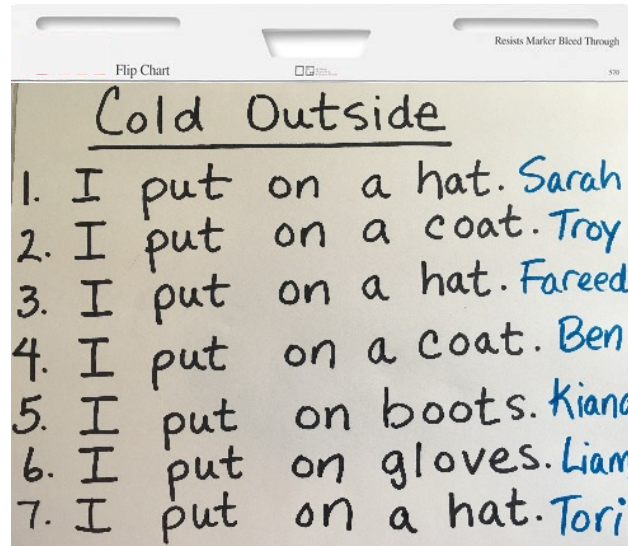Tom's in Trouble

DLM

Tom Sawyer got in trouble all the time.

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Book Sources

- tarheelreader.org

- http://www.dynamiclearningmaps.org/familiar-texts-im

- http://www.storyshares.org

- http://www.storylineonline.net/

- http://asp.tumblebooks.com/

- The curriculum your school uses

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Read & Interact with **Enthusiasm**

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Shared Reading PD

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Module

Self-Reflection & Observation Guide

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What is predictable chart writing?
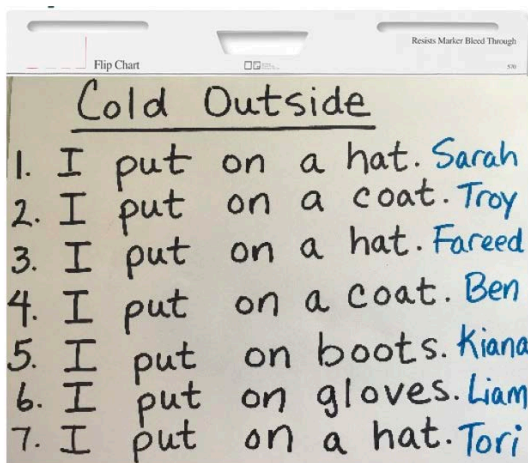
A multi-step group activity

Provides opportunities to teach:

- communication

- concepts about print,

- word identification, spelling,

capitalization, and punctuation.

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**Literacy and Communication for Students with Complex Multiple Disabilities including Visual Impairments or Deaf-blindness**
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How does it work?

Step 1: Write the chart.

Step 2: Reread/work with chart.

Step 3: Work with cutup sentence strips.

Step 4: Be the sentence.

Step 5: Make the book!

Step 1: Write the Chart
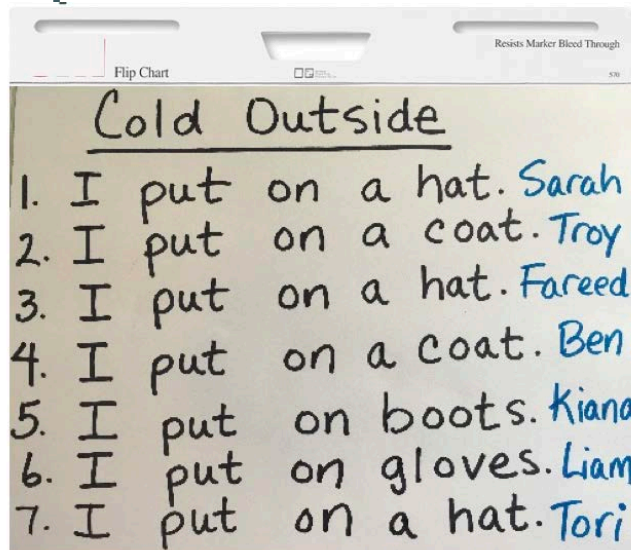
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Choices

"I put on mittens"

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Step 1: Write the Chart

Cold Outside
1. I put on a hat. Sarah
2. I put on a coat. Troy
3. I put on a hat. Fareed
4. I put on a coat. Ben
5. I put on boots. Kiana
6. I put on gloves. Liam
7. I put on a hat. Tori

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Repetition with Variety

I put on …
• Colors on the Tree, Funny Costumes, Ice Cream Toppings …

I like …
• Favorite Sports, Pets, School Activities …

I want to go …
• Vacations, Field Trips, Restaurants

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What other topics could be supported by the sentence stem, "I put on..."?

Start the presentation to see live content. Still no live content? Install the app or get help at PollEv.com/app

81

Step 2: Reread and Work with the Chart

Reread chart to provide a good model

Reread chart as a group

Analyze chart for key elements
- Students work on their communication

82

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like	want	get	make	good	more	
not	go	look	turn	help	different	
I	he	open	do	put	same	
you	she	that	up	all	some	
it	here	in	on	can	finished	
where	what	why	who	when	stop	

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Step 3a: Read the Sentence

I put on boots.

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Step 3b:
Cut the Sentence into Individual Words
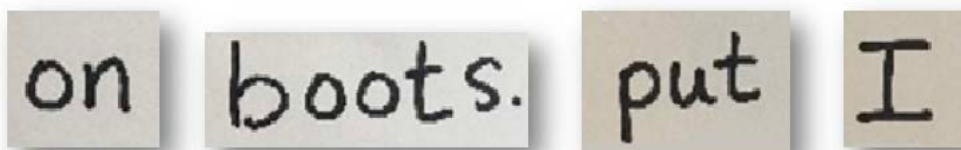
85

Step 3c: Recreate the Sentence

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Step 4: Play Be the Sentence

Write each word from student sentences on individual pieces of paper.

If available, program single message devices.

Work with students to create the sentences.

Read and reread modeling with core.

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Step 5: Make the Book

I put on boots.

I put on a hat.

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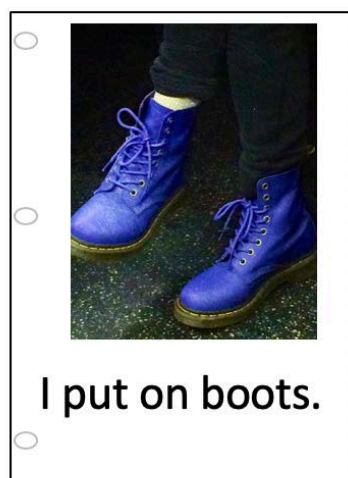
Review: Sentence Stem

In predictable chart writing, the sentence stem is the most important part:

- It is the repeated part.

- It is the predictable part.

- It includes the words students will first learn to "say" using core.

- It is the first part students can learn to read and write.

Planning for Predictable Chart Lessons

1. Plan chart title and the core-based sentence stem.

2. Identify *what* choices will be presented to students

3. Identify *how* choices will be presented and accessed by students.

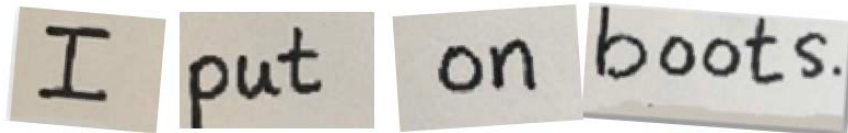Planning guides available from www.project-core.com

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Samples of Predictable Charts

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Predictable Chart Writing PD

http://project-core.com

Module

Self-Reflection and Observation Guide

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Independent Writing: Why is it important?

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Writing with Alternate Pencils at http://dlmpd.com

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Learn by Use

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Topics

Provide students with choices of
interesting and meaningful topics.

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Presenting Topic Choices

- Symbols or drawings

- Photographs

- Remnants

- Written lists read to the student.
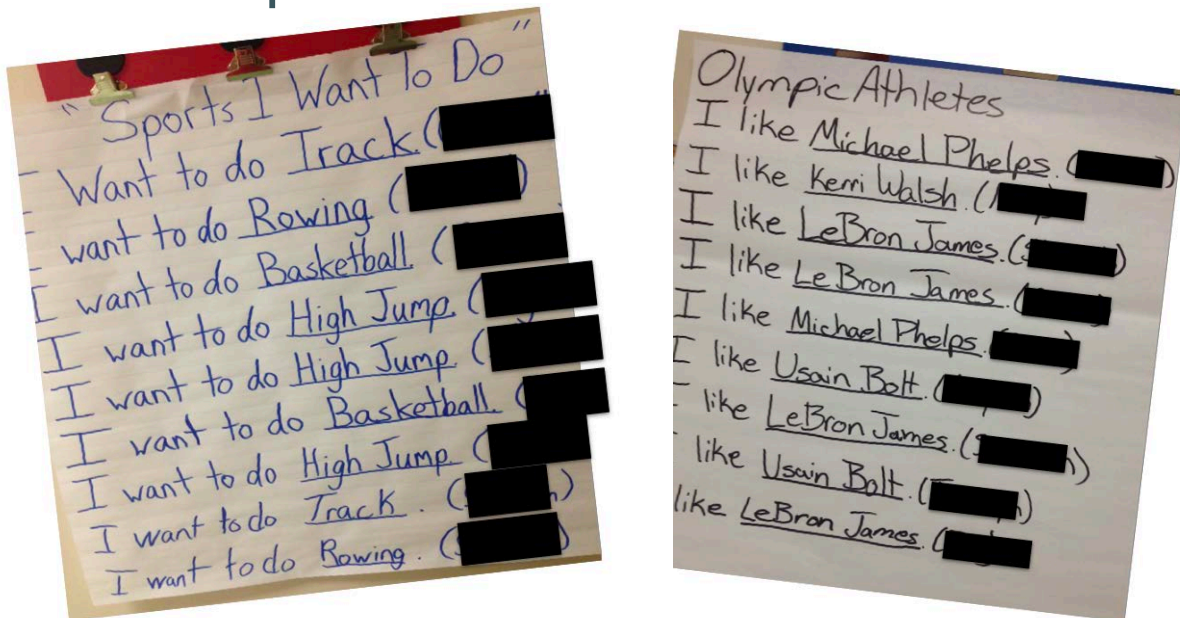
97

Encourage communication about the topic

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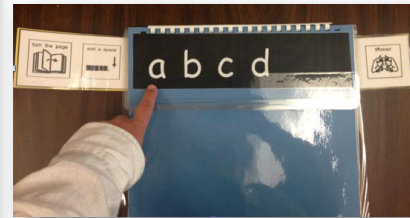
Write using letters!

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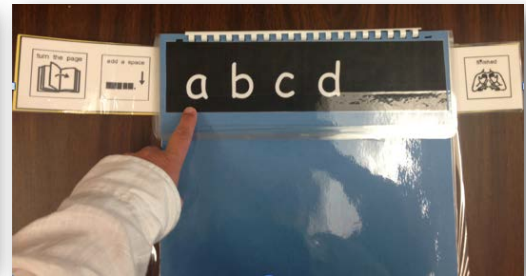Karen Erickson & Sofia Benson-Goldberg
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Providing Feedback

Home Journal Entry
September
Topic: Mom being gone for two weeks

iijkkklmwwwwyzzjjjjjkm

mmmuuuuvz

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101

What feedback might be helpful for Jake as a writer?

You wrote so many letters!

Tell me more about your mom.

Good writing.

I like what you've done here.

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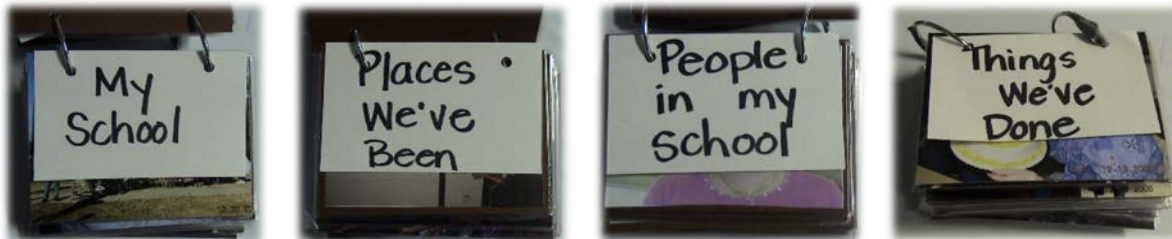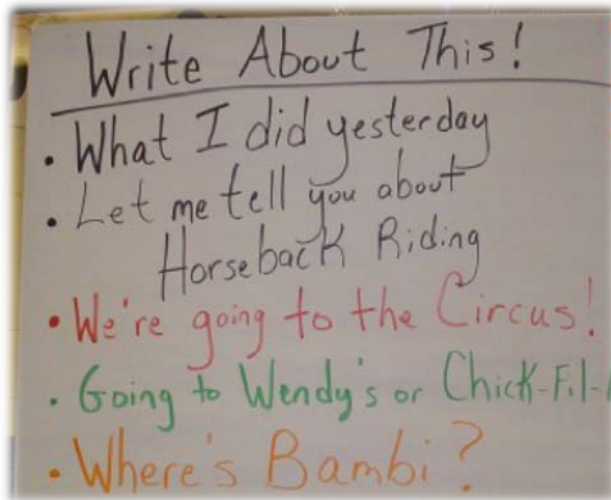Center for Literacy & Disability Studies, Dept of Allied Health Sciences, UNC Chapel Hill

School Journal Entry

January
Topic: Bingo Game (which Jake won!)

gme fjw

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What feedback could you provide here?

gme fjw

You were trying to write the word game.

Can you tell me some more about this?

Let me show you how to spell game.

I think the letters jw mean Jake won.

Start the presentation to see live content. Still no live content? Install the app or get help at PollEv.com/app

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Feedback to Avoid

"Good writing."

"You wrote a lot."

"You chose many letters."

"Let's fix this."

"Think about how you spell this word."

Planning Independent Writing

- ALL students have an individual communication system that meets their access needs.

- All students have an appropriate pencil.

- Prepare a variety of topic choices.

- Determine an accessible format to present topic choices.

Planning guides available from www.project-core.com

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Independent Writing PD

http://project-core.com

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Self-Reflection and Observation Guide

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Alphabet and Phonological Awareness

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Students Learn the Symbols We Teach

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Explicit and Embedded Instruction

Each day, teach alphabet and phonological awareness through a combination of explicit and embedded approaches.

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Teach letter names and sounds.

Teach upper and lower case.

Teach in meaningful contexts across the day.

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Make or select for writing

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Integrate Communication

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Variety is key!

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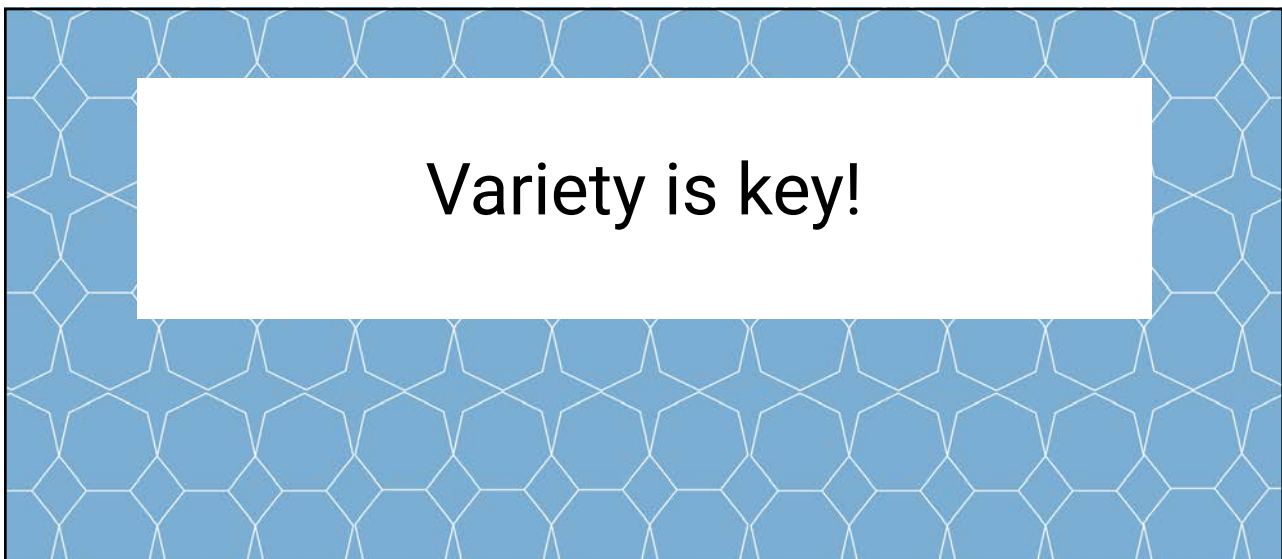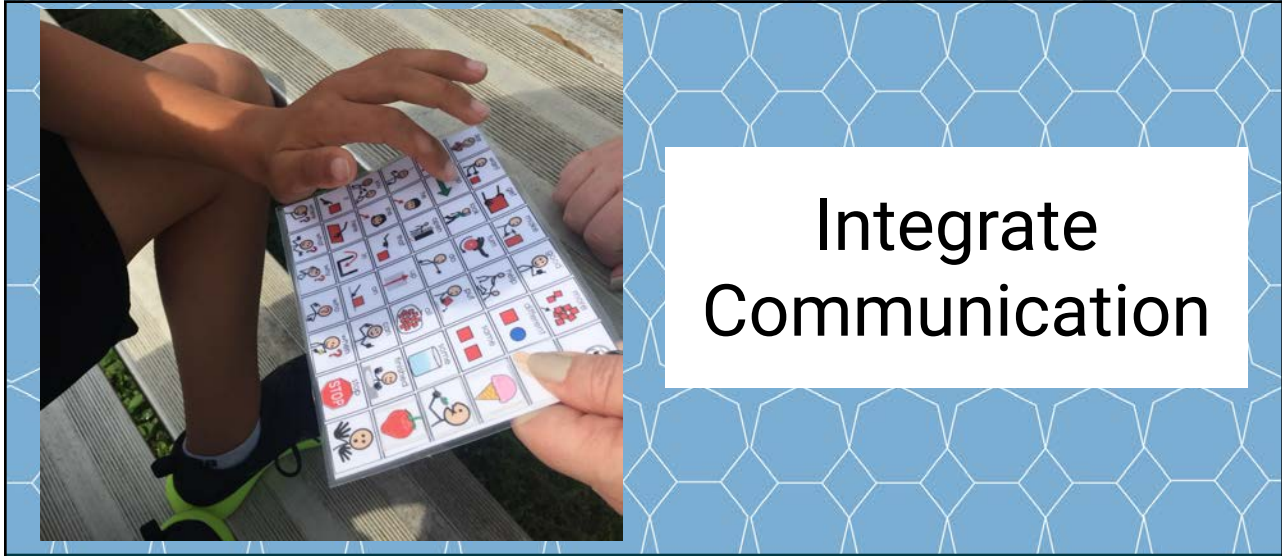
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Teaching Alphabet Knowledge: Embedded

Read alphabet books

Point out letters and print in the environment

Talk about letters and their sounds when you encounter them in every day activities

Provide opportunities to play with letter shapes and sounds

Explicitly reference letter names and sounds in shared reading and writing activities.

Use mnemonics & actions

Use student NAMES!

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Point Out Letters in the Environment

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Schedule

8:00-8:20	Morning Work
8:20-9:20	Math
9:20-9:30	Bathroom/Stretch
9:30-10:30	Groups
10:30-11:00	Music
11:00-11:40	Social Studies
11:40-12:30	Lunch
12:30-1:30	Language Arts
1:30-2:00	Centers
2:00-2:30	Science
2:30-2:45	Reflect/Pack up
	Dismissal

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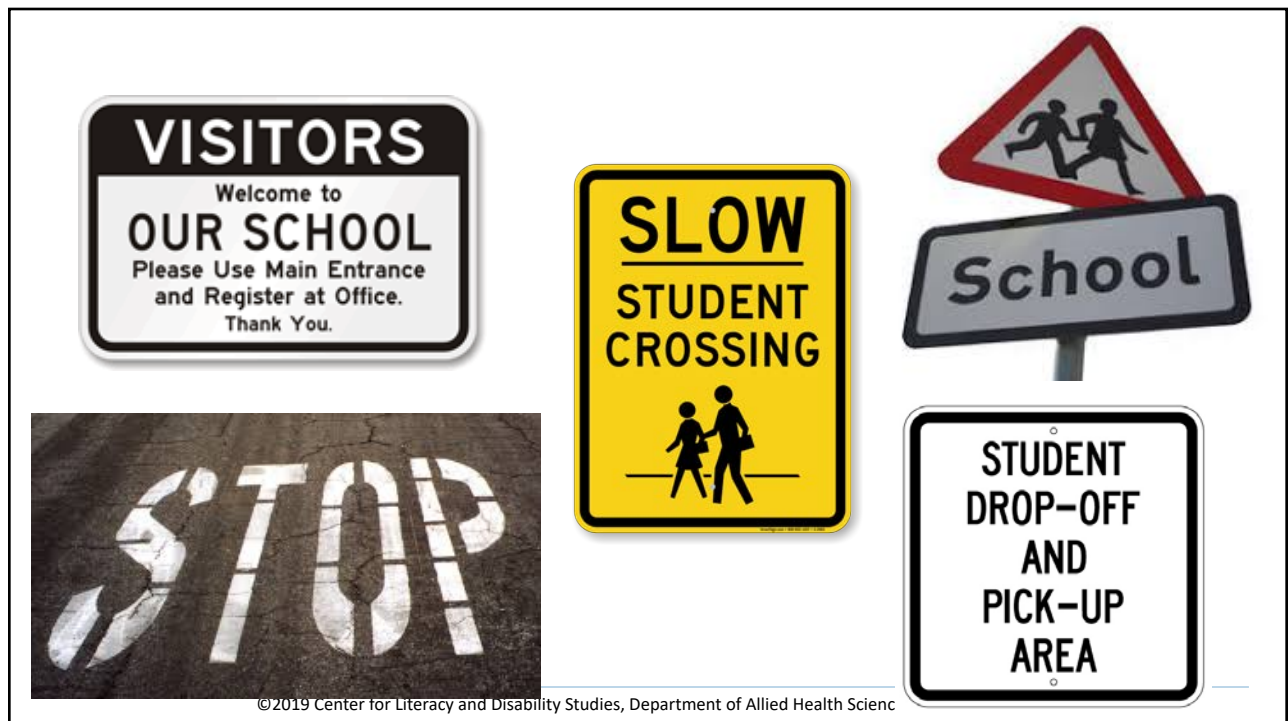Play with Letter Sounds & Shapes

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Alphabet Cards

"Your turn"
"Whose turn?"
"Same"
"Different"
"Not!"
"Go fish"
"Put on"
"Get more"

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Use Student Names

"You"
"Same"
"Different"
"He"
"She"

Aida
Isabella
Santos
Manny

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A Structured Approach to Alphabet Instruction

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Enhanced Alphabet Knowledge Instruction

A seven-step approach to structure alphabet instruction

Jones, C., Clark, S., & Reutzel, D. R. (2013). Enhancing alphabet knowledge instruction: Research implications and practical strategies for early childhood educators. *Early Childhood Education Journal, 41(2), 81-89. doi: 10.1007/ s10643-012-0534-9*

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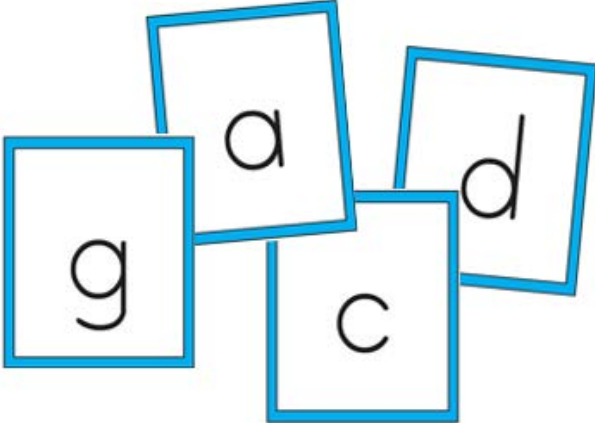**Literacy and Communication for Students with Complex Multiple Disabilities including Visual Impairments or Deaf-blindness**
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Steps 1&2: Letter Identification

1. This is the letter (<u>letter name</u>). This is the upper case (<u>letter name</u>).   This is the lowercase letter (<u>letter name</u>). (Show and/or write the letter, explaining the form.)

2. Let's practice naming this letter. What is this letter? (Point to uppercase and lowercase letters in different order at least 3 times asking students to identify the letter name.)

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Steps 3-5: Letter Sound Identification

3. This letter (<u>letter name</u>) represents the sound /<u>letter sound</u>/. When I say /<u>letter sound</u>/ I place my tongue and mouth like this. (Provide explanation/stories/key words to help students remember the sound.)

4. Let's practice saying this letter. The letter (<u>letter name</u>) represents the sound /<u>letter sound</u>/. Say the sound /<u>letter sound</u>/ with me. (Point to uppercase and lowercase letters in different orders at least 3 times asking students to identify the letter sound).

   Hint: For vowels, teach the short vowel sound and explain when reading words the vowel letter represents its name or its sound.

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Step 5: Recognize the letter in text

5. Now, let's see if we can find the letter (<u>letter name</u>).

   ▪ Students should locate the uppercase and lowercase letter in text and state the letter name and sound each time it is located

   ▪ There are a number of alternatives for students to practice with recognizing the letter in text such as:

   - Sorting through magnetic letters/tiles to find particular letters

   - Identifying the letter in classmates names

   - Using a crayon to circle the letter in newspapers or magazines

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Steps 6 & 7: Producing the Letter Forms

6. Let me show you how to write the (<u>letter name</u>). Here's where I begin on the paper lines to write the letter (<u>letter name</u>). (Provide description and hints about how to write the uppercase and lowercase for of the letter).

7. Let's practice writing the letter (<u>letter name</u>) together.

Note: You can write the letter by selecting it from a keyboard or alternate pencil, but students should select from the entire keyboard not a closed set of a few letters.

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Steps 6 & 7: Producing the Letter Forms

6. Let me show you how to write the (<u>letter name</u>). Here's where I begin on the paper lines to write the letter (<u>letter name</u>). (Provide description and hints about how to write the uppercase and lowercase for of the letter).

7. Let's practice writing the letter (<u>letter name</u>) together.

Producing the letter can also use alternatives for practice such as:
Producing the letter can also use alternatives for practice such as:
Write the letters on small white boards

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Access
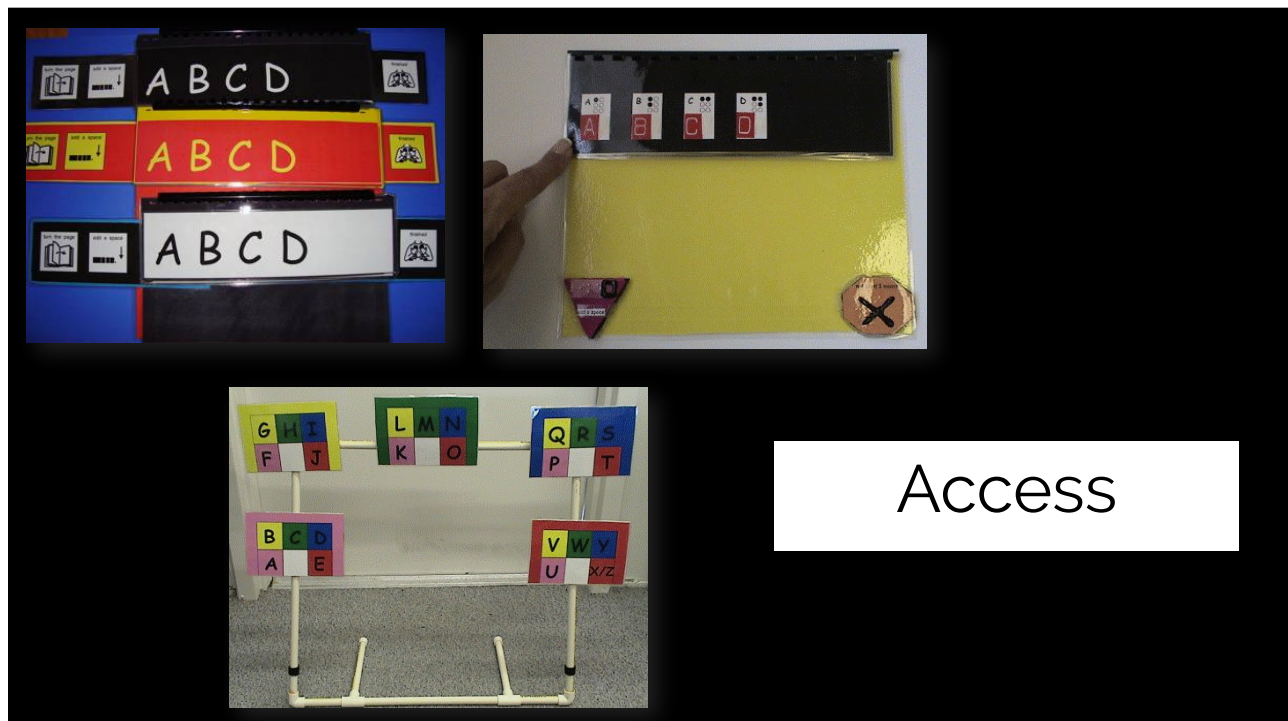
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Build Phonological Awareness

- During alphabet instruction
- Raps, rhymes and poems
- Tongue twisters
- Sponge activities

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Alphabet Knowledge & Phonological Awareness PD

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Module

Self-Reflection & Observation Guide

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Independent Reading

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Independent reading provides the opportunity to:

1. Sample and select appropriate and interesting books.

For information on options for accessible books, review the Independent Reading professional development module at www.project-core.com

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Independent reading provides the opportunity to:

1. Sample and select appropriate and interesting books.

2. Increase competence in sharing interest and excitement about reading.

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Independent reading provides the opportunity to:

1. Sample and select appropriate and interesting books.
2. Increase competence in sharing interest and excitement about reading.

3. Apply skills learned during other emergent literacy instructional routines.

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Ways to "Read" When You Can't Read Yet

For Students with the Ability to Perceive and Understand Pictures

Use Books with Minimal Text and Supportive Illustrations

- Wordless picture books

- Personally meaningful pictures with simple captions

- Books with pictures that closely match the text

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http://tarheelreader.org

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This is an old car.

This is a new car.

This is a red car.

This is a blue car.

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Planning Independent Reading

• ALL students have an individual communication system that meets their access needs.

• Prepare a variety of reading choices that are age and ability appropriate.

• Determine an accessible format to present reading choices.

Planning guides available from www.project-core.com

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Independent Reading PD

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Self-Reflection and Observation Guide

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What happens when instruction looks like this?

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During literacy routines, teachers were slightly more likely to:

	Literacy (*n* = 52)	Non-literacy (*n* = 70)
Students had individual access to Universal Core systems	35%	26%
Attribute meaning, label, & respond	41%	31%
Model using Universal Core vocabulary	61%	53%
Provide sufficient wait-time	63%	51%

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Professionals
(*n*=128, Pilot 3 Sites)

- Teachers — 53
- Teaching Assistants — 61
- Speech-language Pathologists — 7
- Principals — 3
- Other — 4

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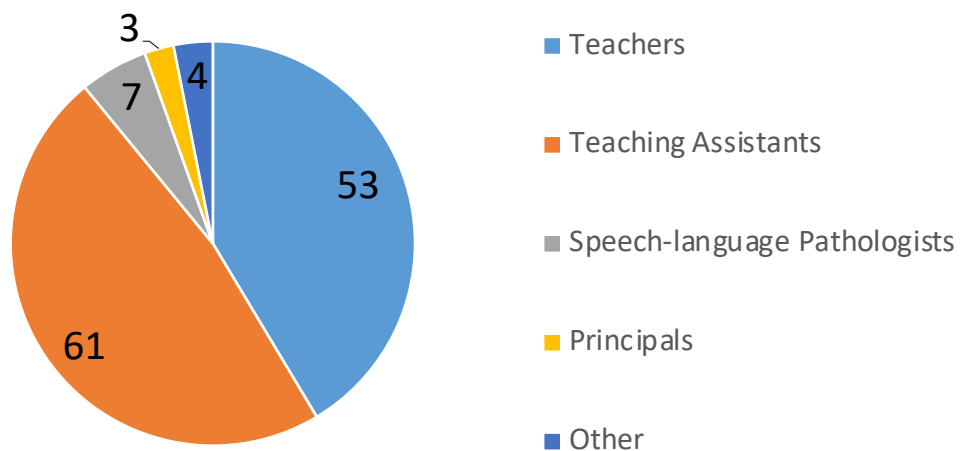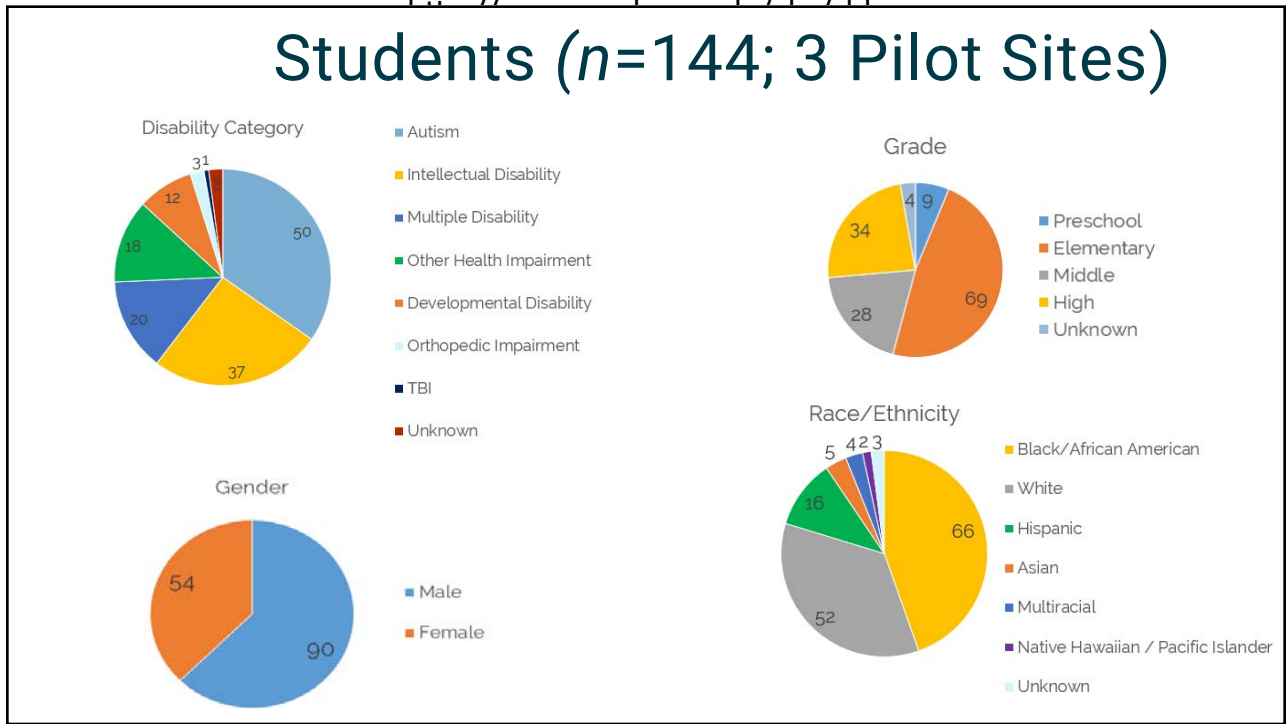Center for Literacy & Disability Studies, Dept of Allied Health Sciences, UNC Chapel Hill

Students *(n*=144; 3 Pilot Sites)

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Change in Communication Level
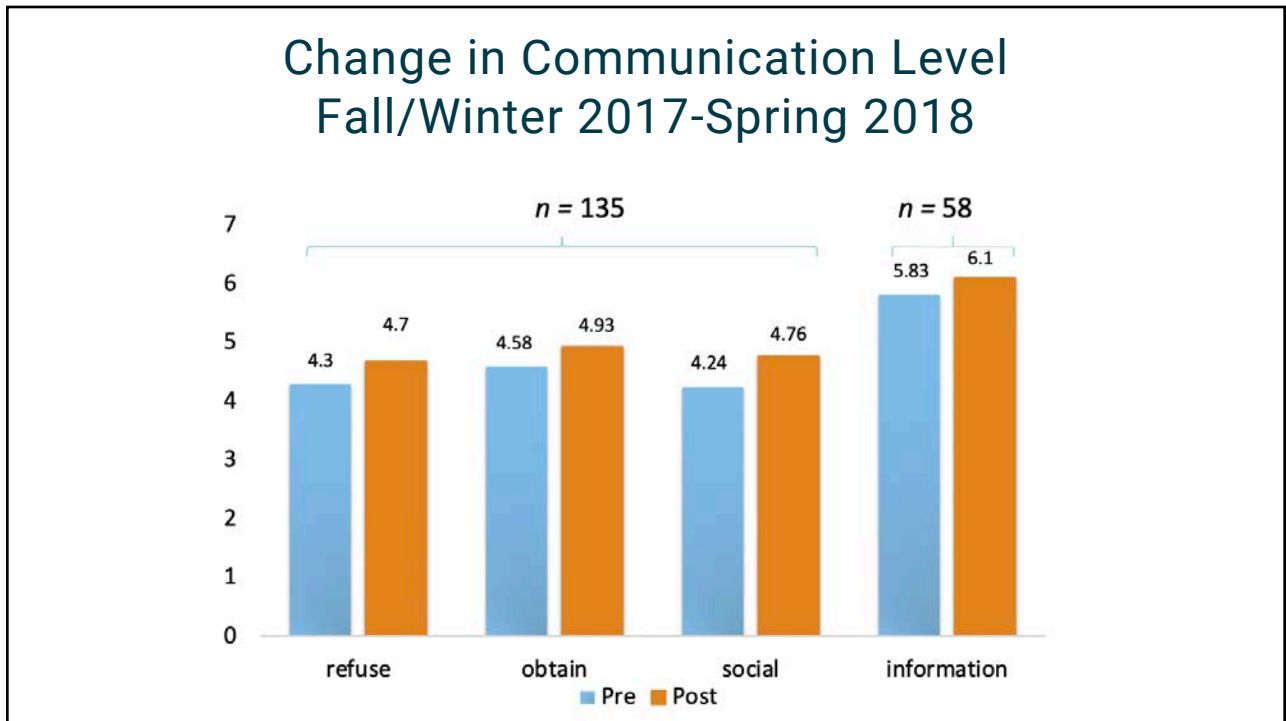# Fall/Winter 2017-Spring 2018

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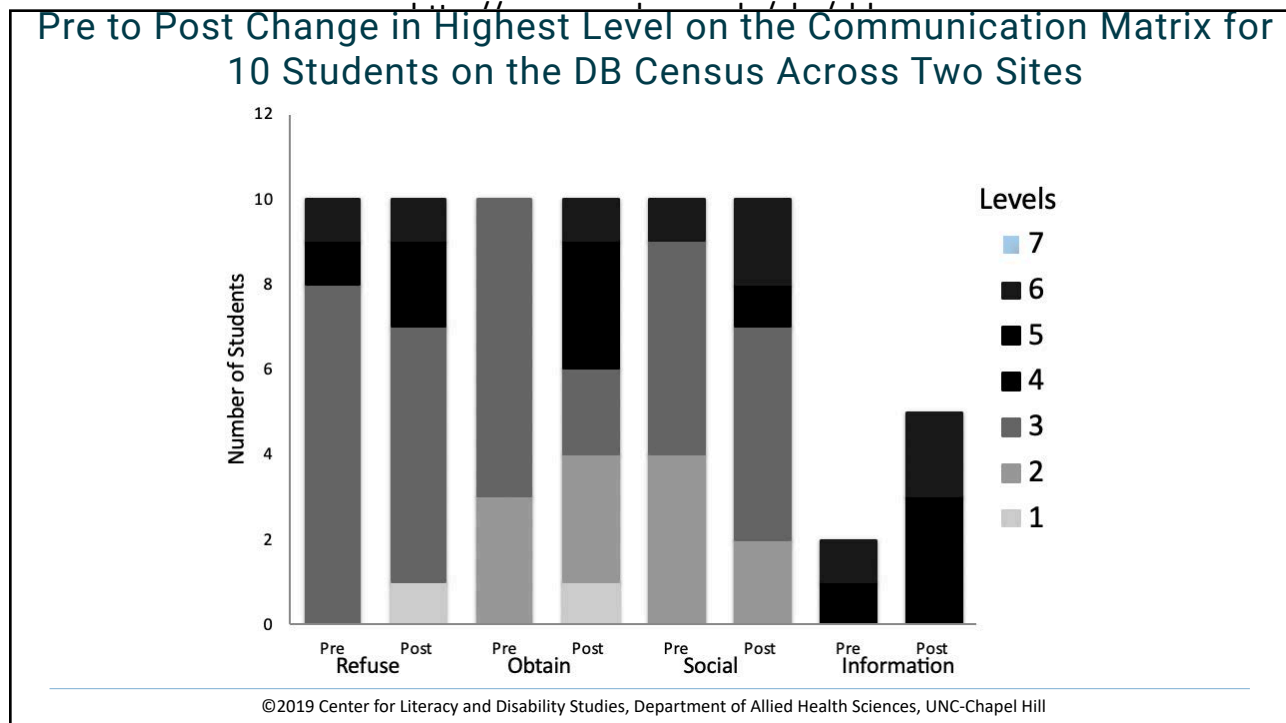Center for Literacy & Disability Studies, Dept of Allied Health Sciences, UNC Chapel Hill

Pre to Post Change in Highest Level on the Communication Matrix for 10 Students on the DB Census Across Two Sites

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Pre/Post Comparisons

Statistically significant changes from pretest to posttest were noted on the Communication Matrix in two areas:

o Overall highest level of communication complexity (Wilcoxon signed-rank test)
  o $Z = -3.949$, $p < .001$, $r = .33$

o Total score on the 24 yes/no questions (Paired samples t-test)
  o $t(128) = -6.482$, $p < .0001$, $d = .57$

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Summary

Goals include:

- empowering teachers to teach communication using evidence-based practices embedded in common instructional routines.

- creating an implementation program that is not dependent on a specific curriculum.

- promoting symbolic communication development and academic success.

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Implementation Program Components
project-core.com

Professional Development Modules

Instructional Planning Guide

Self-reflection & Observation Checklists for each of the 5 routines discussed today.

Universal Core vocabulary selection tool and downloadable print formats

1-page Implementation Resources and FAQs

Success Stories

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Contact Information

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Chapel Hill, NC 27599

http://www.med.unc.edu/ahs/clds