

Switch Access, Vision Challenges, Complex Communication Needs and Literacy Learning

Linda J Burkhardt



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Which Kids?



Severe Physical Challenges



- Limited ability to use direct selection with hands

Vision Challenges that Impact Ability to Discriminate and Read Text

- Ocular disabilities
- Cortical Visual Impairment (CVI)
 - Range of visual abilities and characteristics (Roman-Lantzy)
 - May improve with massive meaningful visual experiences
 - Complexity is often an issue that is difficult to resolve

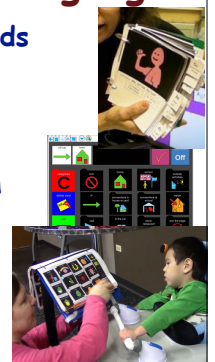
Complex Communication Needs

- Access often limited to auditory plus visual scanning or auditory only scanning
- May or may not have access to learning a robust aided-language system - **So this becomes a priority!!!**



Aided Language Systems must represent a full robust language

- More than just a collection of words
- Range of communicative functions
- Agreed upon rules and patterns - designed for developmental growth
- Able to be used in discourse
- Contain both core and content vocabulary
- Accessible for the child receptively as well as expressively



Language and Literacy are Patterns that develop in Parallel

- Can't teach literacy without language
- Essential to be providing access to learning aided-language system
 - Receptive
 - Expressive
 - Cognitive processing - Self-talk
 - In addition to Literacy Learning

Immersion in Language and Literacy

- Best practices in teaching aided-language involves immersion in aided-language learning environment - based upon how typical kids learn to speak
- Best practices in teaching literacy involves immersion in a literacy rich environment, in conjunction with a robust literacy program - based upon how typical kids learn to read

Visual, Auditory, Social and Interactive Access to Literacy Experiences

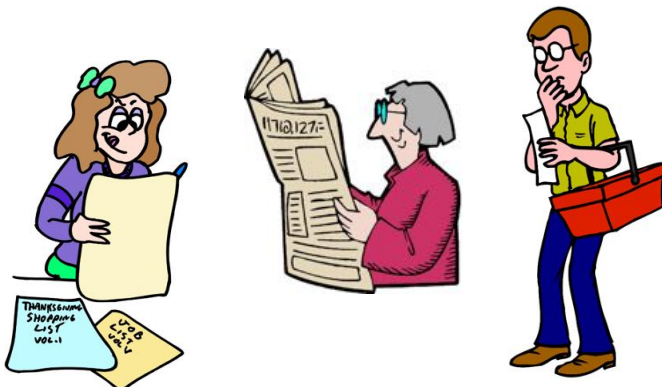


vs. Worksheets / Drill and Kill

Build a Base of Multi-Modal Literacy Experiences - NOT Isolated "Readiness" Skills



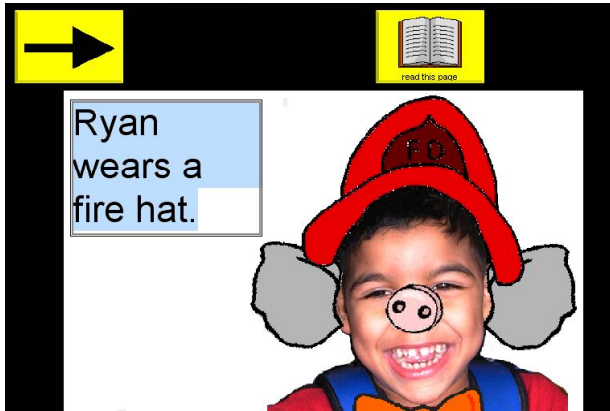
Understanding that Text has Meaning



- Exposure and play opportunities for functional use of print: lists, notes, cards, recipes, letters, email, direction sheets, signs, labels, etc.



Concepts about Print / Books Digital and Print



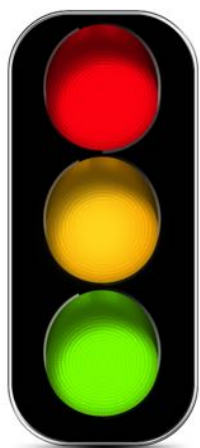
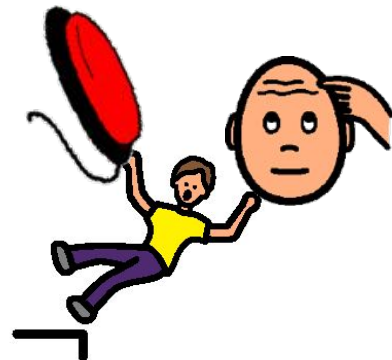
Cognitive and Motor Load are both High for children who have severe physical challenges plus vision challenges



The Juggling Act and Working Memory



Always Balance Cognitive and Motor Difficulty



Hard

motor

Easy

language
cognitive

sensory processing

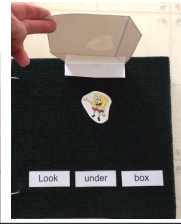
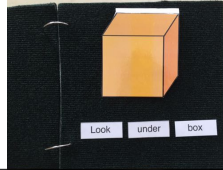
Don't Overload the Visual Channel

- CVI range - determine how materials should be presented
- Reduce complexity (visual and auditory)
- Use auditory channel if vision requires too much effort or if it is not at a sufficient level on the range to introduce text

Reduce Visual Complexity For Literacy Activities



2
Don't eat the sock.

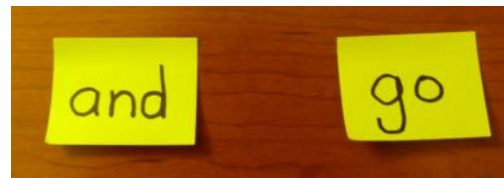


Help the child focus attention on the important relevant components of a task

Window to Direct Visual Focus



Post-it Notes and Two Dry Erase Boards



Size and Spacing of Text

The weather is windy.

The weather is windy.

The weather is windy.

The weather is windy.

Increase attention to the shape of words

cup



Dr. Christine Roman-Lantzy

Some Children will be Learning via a Dual Literacy Program

- For children who have some visual abilities:
 - Visual reading and listening comprehension skills may be at very different levels
 - Can work on both at appropriate levels
- One should not hold back the other - some children can progress in both

Auditory Channel - May be the Best Possible Option Left for Input and Discrimination

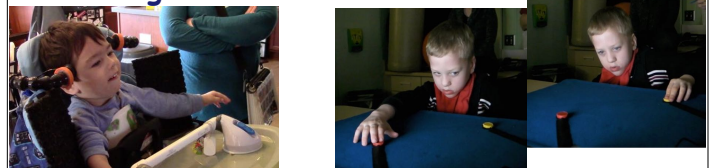
- May be a strength
- May or may not have additional auditory processing challenges
- May be able to get some input visually, but not as reliable as auditory
- Vision may actually add complexity for some children

Main Gateway to the brain will be Auditory

- Bottleneck of input to the brain
 - monitoring safety in the environment (fight or flight)
 - Input needs to be auditory
 - Communication system: auditory scan
 - Access needs to be auditory
 - Thought is probably auditory
 - Holding a thought is challenging when needing to attend to everything through the same channel

Teaching Switch Access

- Learning to use a switch for access is a process
- Children don't typically start with automaticity of movements
- Need to develop automaticity in order to use the switches for learning - instead of learning to use the switches



What Does Research Say About Learning a Motor Task?

- Initiation of intent must come from within the child
- Problem solving opportunities for trial and error
- Practice and repetition with a purpose
- Thousands of repetitions with variation

Hanser and Burkhart

Developing Automaticity takes practice:
Thousands of Repetitions with Intent, Purpose, and Variation

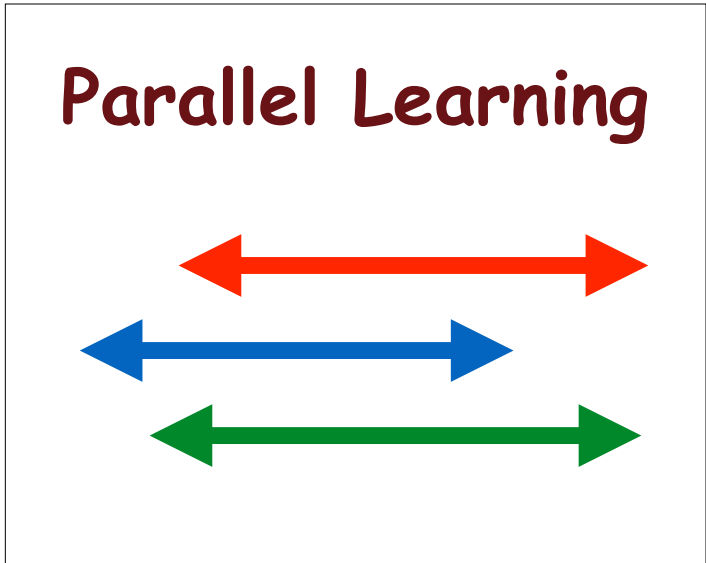
Problem of Time and Practice Needed to Develop Automaticity with Switch Use



Stepping Stones to Switch Access - Strategies to Provide Children with Developmental Problem Solving Experiences



- Step 1: Single Switch: Cause and Effect
- Step 2: Single Switch: Multiple Locations and Multiple Functions
- Step 3: Two Switches / Two Functions
- Step 4: Learning to two switch step scan (move, move, get)
- Step 5: Two Switch Step Scan - Failure Free with Feedback
- Step 6: Two Switch Step Scan for Clear Choices
- Step 7: Practice for Increasing Accuracy with Two Switch Step Scanning
- Step 8: Two Switch Step Scan Reducing Time for Success - Learning and Automaticity



Classroom Suite Activities

<p>Hide and Find</p>	<p>build blocks</p>	<p>ABC Book</p>	<p>Super Why videos</p>	<p>choose a video</p>
<p>Wheels on the bus</p>	<p>Balloon Color Play</p>	<p>Big Small Fast Slow</p>	<p>Feed the Alligator</p>	<p>Clay Play</p>
<p>S to a Bed</p>	<p>Spider Play</p>	<p>Cars and Trucks</p>	<p>Sesame Street</p>	<p>Gabriella silly dress up</p>

A B C D E F G H I

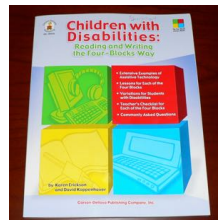
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Mind Express (Jabbla): Steps Before Step Scanning

Literacy Four Blocks

(Patricia Cunningham)

- Working with Words (phonics, letter names and sounds)
- Guided Reading (comprehension)
- Self-Selected Reading
- Writing



Karen Erickson and David Koppenhaver

Center for Literacy and Disability Studies

<https://www.med.unc.edu/ahs/clds>

Jane Farrall Consulting
www.janefarrall.com

Working with Words - emphasize auditory components

- Phonemic Awareness
- Rhyming
- Alliterations and tongue twisters
- Letter names - Auditory Hook word
- Letter sounds
- Onsets and Rimes
- Making words
- Syllables

2 Switch Step Scanning Activities to Play with Sounds

2 Switch Step Scanning Activities to Play with Sounds

2 Switch Step Scanning Activities to Play with Sounds



Splashtop Software and App

- Mirror what is on computer
- Switch access is more robust on computer (connect switches to computer as usual)
- Classroom Suite, Mind Express
- Mount or hold within the child's visual field
- Connect switches to the computer

Challenge: to see and visually discriminate a letter to connect a letter sound to

Provide: a personalized set of hook words for each letter of the alphabet

Hook Words

(Select one hook word for each letter)

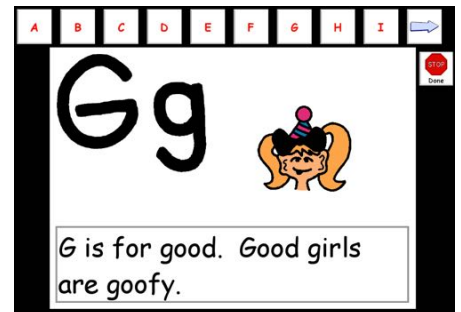
- Apple,** ask
- Bye,** boy, bus, bed, bad, back, ball, bug, bat, bath, bell,
- Cold,** Cur, Cat, Cup, Calm, Come, car, cart, cover, carry,
- Dance,** Dog, Dad, day, dance, dark, done, doctor, door, do
- End,** elephant, elevator, empty,
- Fun,** Fish, fast, feet, fix, fan, feel, fist, finger, family, full, farm
- Good,** gas, get, give, go, girl, game, gone, goofy,
- Hug,** hat, hand, hi, happy, hard, head, hello, help, hot, hair, hit, head, house, hungry, hurt
- Itch,** in, it, instruments, it
- Joke,** Jump, job, jar, jelly, jacket, jeans, jewelry, jingle, joy, juice
- Kiss,** kick, kid, key, kitchen,
- Love,** laugh, leg, lip, lick, lift, like, list, look, last, lazy, lap, loud
- Mad,** mom, mat, math, me, mess, miss, more, move, music, mud, mouth, money, milk
- No,** not, name, nap, need, new, nice, night, nose, nut, nurse, noisy, neck, nag
- Off,** on
- Pants,** Pain, pop, paw, part, pee, poop, pig, PODO, pet, pool
- Quiet,** quick, quarter, quit, queen
- Read,** race, rain, ramp, read, rest, ride, room, run, rap, rag, rip, ring, rub, steady, right, rope, rack, race, roll, rug, rock

- Pants,** Pain, pop, paw, part, pee, poop, pig, PODO, pet, pool
- Quiet,** quick, quarter, quit, queen
- Read,** race, rain, ramp, read, rest, ride, room, run, rap, rag, rip, ring, rub, steady, right, rope, rack, race, roll, rug, rock
- Silly,** sock, sad, song, sun, Santa, see, sit, sick, sing, secret, soup, sand, seat, safe, super, side, sink
- Teeth,** Tongue, toe, toy, talk, tummy, tickle, time, turn, tub, top, teeth, teacher, today, tired, table, towel, touch
- Up,** underwear, under, uncomfortable
- Van,** video, visit, vest, vote
- Wet,** watch, wait, walk, want, water, wiggle, woman, worry, work, what, why, sisters, word, wrong, wow, wild, wipe, wind, winter, watch, wash, wall, warm
- Xray**
- Yes,** yawn, yum, yell, yes, yuck, young, yogurt
- Zipper,** zoo, zero, zip

Note: When selecting key words for an individual child, use words with the short vowel sound in the beginning of the word. For example, fish rather than ice.
 Stay away from food items for kids who don't eat much by mouth.
 Stay away from things that are mostly visual for kids who have vision challenges.
 Stay away from objects that don't have meaning for children who are not able to manipulate objects themselves.
 Stay away from blends and double consonants at the beginning of words.

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ABC Hook Words Book



H is for hug. A hug makes me happy.



P is for Pants. My pet pig peed on my pants.

Hook Word Book sounds

tarheelgameplay.org



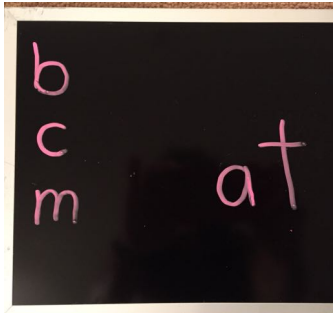
<http://tarheelgameplay.org/favorites/?pageColor=fff&textColor=000&voice=silent&favorites=881,897,885,883,991,849,986,901&page=1>

iPads - Auditory Scanning still challenging!

- Often most complex, expensive and last feature considered when developing Apps
- Built-in scanning from Apple is getting better, but still very hard for auditory scanner
- Developers still need to write code to use Apple's scanning for these kids

"Light Tech" Working with Words

- Black dry-erase with fluorescent markers
- Velcro/magnet cards on black Velcro or magnet boards



Write for a purpose and an audience

- Sample purposes: email, text, cards, invitations, shopping list, sign, letters, story, journal, Facebook post, etc.
- Remnant books for setting purposes
- Robust AAC system to talk about writing
- Share writing with others

Forms of Writing (Always have a purpose)

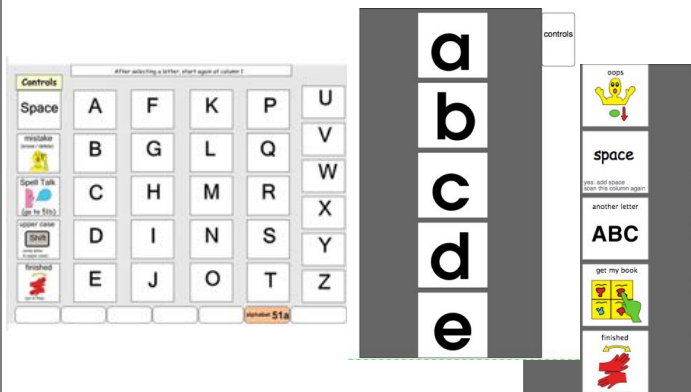
- Scribbling / Writing with the Alphabet
- Co-planning Errorless Writing
- Predictable Charts and Sentence Starters for group writing
- Writing with AAC - Robust Language System
- Combination of AAC and alphabet at child's discretion

Writing with the Alphabet

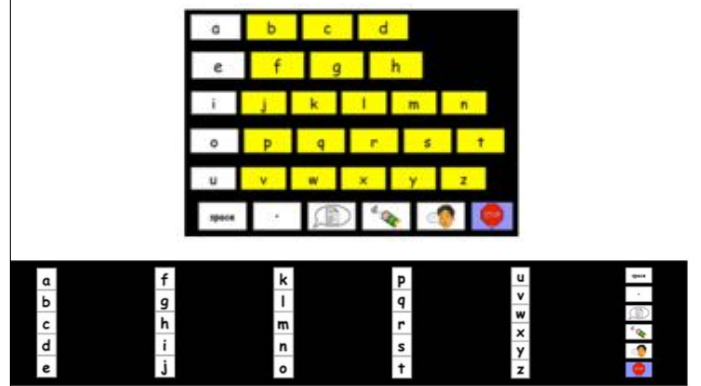
Setting purpose: email, shopping list, sign, letters, story, journal,

setting topics - Remnant books, running lists, AAC system

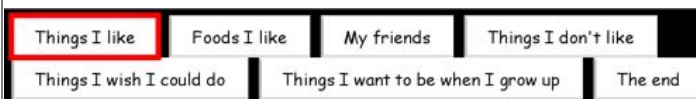
Writing with the Alphabet Alternative Pencil



Writing with the Alphabet "High Tech"



Co-Planned Errorless Writing



My Story

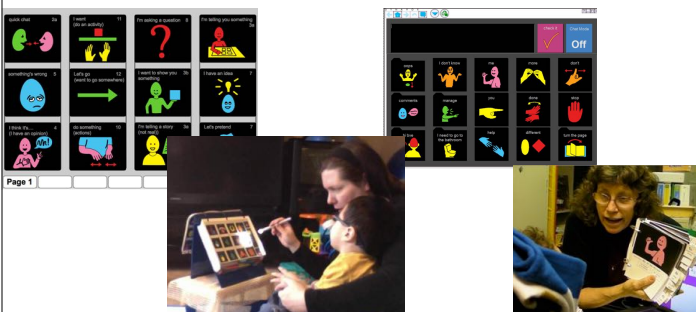
I like riding my bike.
I like to eat ice cream.
I don't like stinky trash.

Modeling Writing

- Model writing for multiple purposes throughout the day
- Use child's alternative pencil
- Use child's AAC system
- Don't worry about using full sentences for a child who is at a younger expressive language. Model slightly above the level they produce
- Use Self-Talk and Verbal Referencing

Writing with Whole Words

Use of Robust AAC system to write and talk about writing



Writing email to Ian (friend)
Sean age 7

I'm asking a question,
Tell me yes or no, meet
buddy?

Letter to Lauren (previous assistant)
Tom age 8

Why I think you good, great,
excellent, fantastic and cool is
because I feel horrible, strange
trying hard when not here with me.

Scribing for the Writer

- Self-Talk while writing / typing
 - sounding out words
 - naming letters
 - calling attention to hook words
 - calling attention to word walls
- Spelling with rhythm - ear print for the spelling of words

Scribe - Don't suggest edits during initial writing



Revising, Editing, Publishing

- Writing may span days or weeks instead of all in one session
- Have others read and comment for revisions
- Edit with assistance of a scribe at first
- Publish/send and share with intended audience

Guided and Shared Reading/Listening means there is active participation

- Not just reading/listening to a story
- Listening is often passive and is often insufficient for learning
- Set purpose for reading/listening (change with multiple readings on different days)



- Involve the child in discussion, opinions, comments using AAC
- Provide options for re-reading/listening to parts as needed
- Review purpose and discuss afterwards



Shared or Guided Reading / Listening

- Auditory clutter from the environment and the auditory scan may mean that parts are missed with one reading
- Challenge to go back and "re-read" to find an answer
- Amount to hold in head with no visual hook
- Ways to remember the purpose of reading / listening
- Systematic Method for Multiple Choice answers

Active Learning is not Just Answering Questions

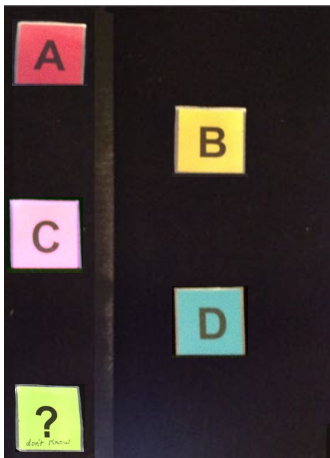




My Work Phrases

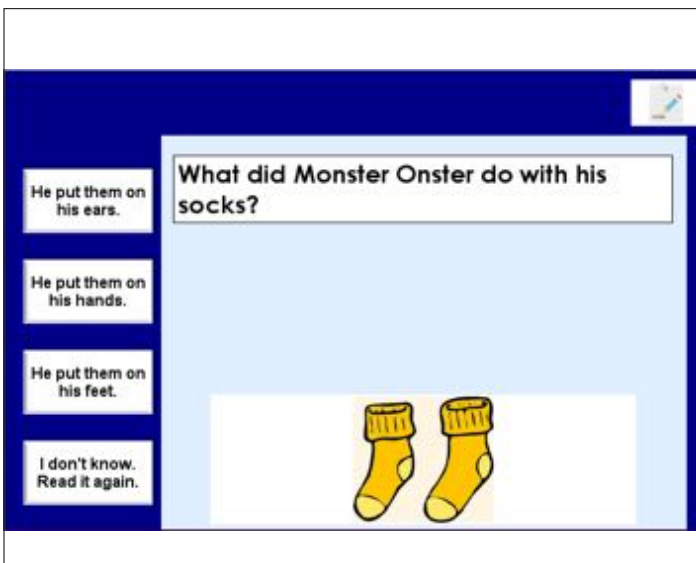
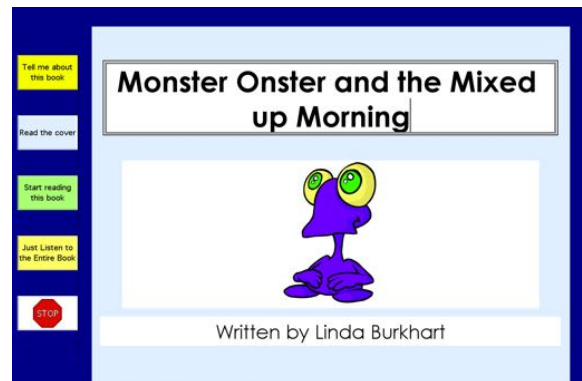
My Work Phrases - "light tech" auditory or auditory plus visual scan

- Read it again
- Explain it to me
- Give me a minute to think
- Help me brainstorm some ideas
- Please get my communication book



A, B, C, D
Not Sure
(Black Velcro®
Board)

Listening Comprehension with Feedback



Template



Self-Selected Reading

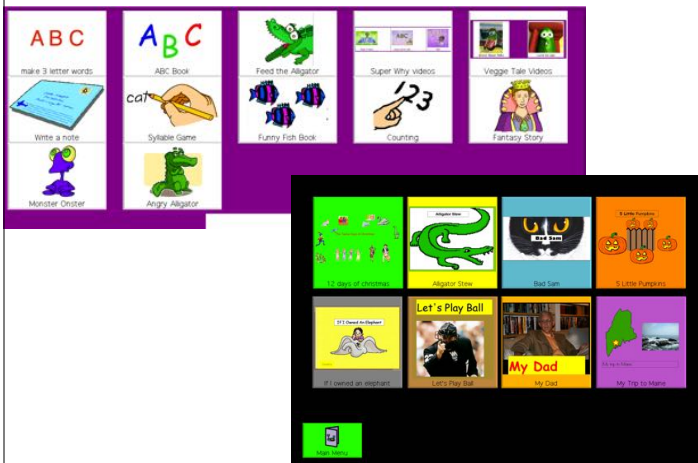


Self-Selected Reading

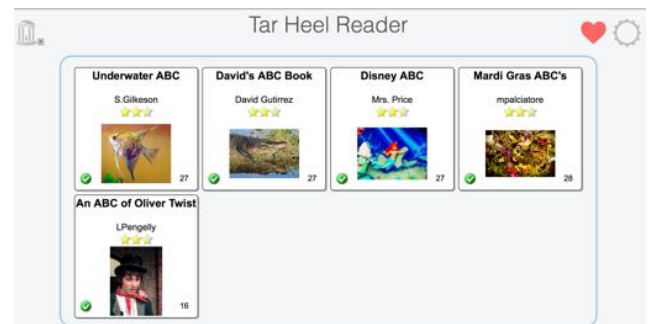
- Kid picks the book!
- List of 3 plus something else
- Electronic Launchers / Book Shelves
- Real books - Partner reading
- Recordings of real people reading
- Record teacher or peer reading the book

Create using: Classroom Suite, Mind Express, Clicker, Boardmaker Plus, Boardmaker Studio, Clicker, Communicator, GoTalk Now, etc.

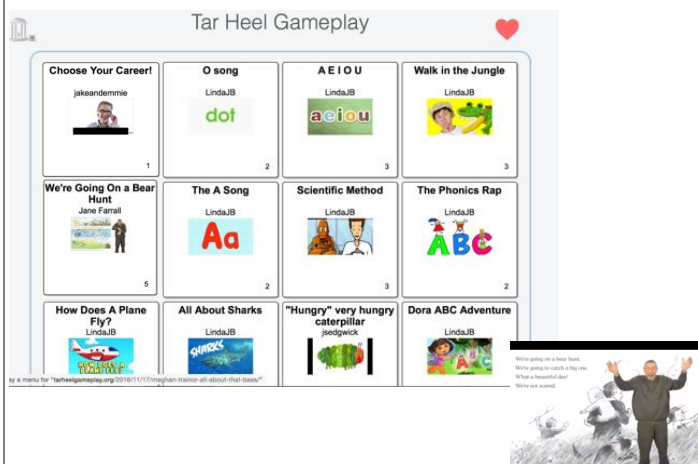
Launchers and Book Shelves



Tarheel Reader - Use Favorites and Look for Stories that Auditorially Interesting



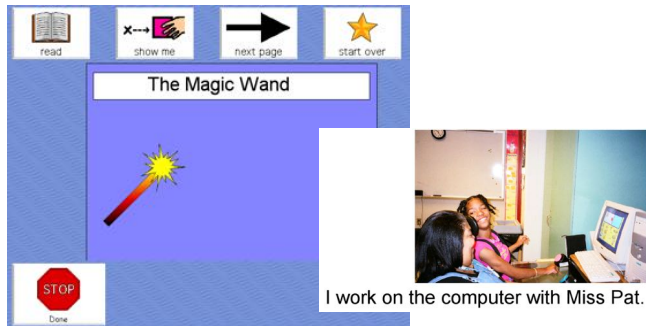
<http://tarheelgameplay.org>



Creating Books

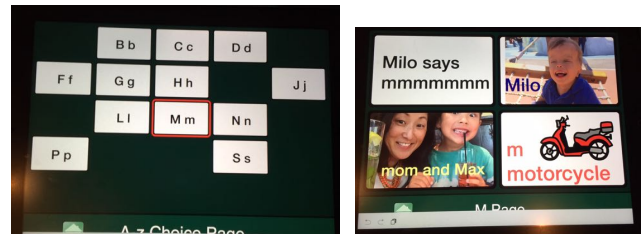
- Related to the Child's experiences
- Emphasis on literacy level: rhythm and rhyme
- Sound effects for turning pages forward and back
- Video clips
- Reduced complexity of visuals
- Large text, additional space between words and lines
- Digital Voice for fluency vs. Text to speech
- Control to do more than turn the page

Provide more interaction than just turn the page



Write Books Related to the Child's Background Experiences and Interests

2 Switch Step Scanning Activities to Select - Listen to and Read Books

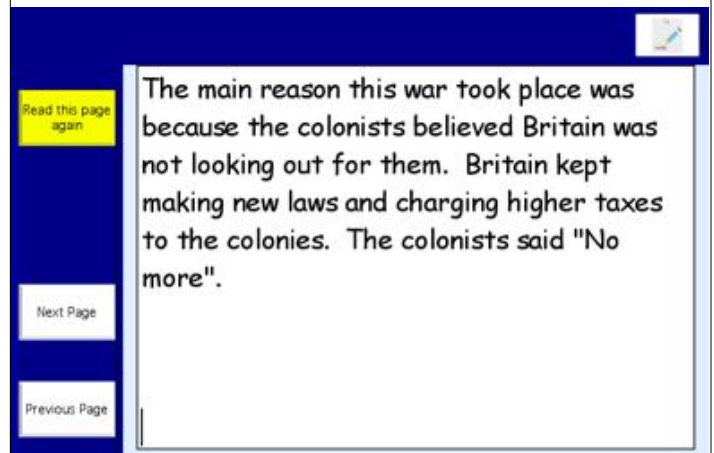


GoTalk Now

Study Guides for Older Students

- Need launcher or light tech way to choose
- Can be just text with limited or no pictures
- May include video or sound effects

Study Guide



Remember:

We can't know what a child is capable of learning until we provide appropriate access and put in the time to teach them



Software and App Features that Make Access Possible for the Child Who Uses Switch Access with Auditory Scanning

May Need Enhanced Presentation and Enhanced Feedback - Visual and Auditory

2 Switch Step Scanning

- Auditory cue - spoken / programmable
- Mover switch must be released for scan to advance to next item
- No delay in action of the app or software when a switch is activated
- Switch activation interrupts speech and immediately responds by: going to the next item, or selecting the item - depending upon the switch activated

Everything in the activity must make sense with your eyes closed

- Sounds / auditory cue for everything that is scanned
- Sounds when screen changes
 - sound for next page
 - sound for previous page
- Reduce extra verbal clutter

Options to Reduce Clutter

Screen Design and Layout Can be Critical for the Scanner

1. Whose house did Goldilocks visit? _____

2. Where did the three bears go? _____

3. What did Goldilocks say about the porridge? _____

4. What did Goldilocks say about the chair? _____

5. Do you think the bears liked Goldilocks going into their house? _____

6. What was your favorite part of the story? _____

Switch to Toolbar

Option for Scanning Magnification with Auditory Cue



Can you find the Animals?

Options to highlight text

- With speech
- Without speech (without limiting other auditory feedback)
- Student controlled
 - Speech on and off
 - Speed
 - Child selectable different Voices for reading text on screen

Features Needed for High Tech Wouldn't it be Great if:

- The child could listen to what is in his message window in a private ear speaker before speaking it out loud? (high tech SGD)
 - This would allow for editing and keeping track of creating longer generative messages for speaking and writing
- All high tech Speech Generating Devices could send text to another computer for writing with the child's full language system as the full screen keyboard (A feature that is disappearing from many SGDs)