

Day 2: AAC OPTIONS



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The AAC Process- where are we so far?

1. AAC Needs Assessment- gather info about child
2. Feature Match- 1) determine what features a child may need in their AAC system based on their needs and skills 2) match those desired features with an AAC option
3. AAC Exploration- try out a few AAC options that may match child's needs, note how the child interacts with the AAC
4. AAC Trial- determine what 1, 2 or 3 AAC options to officially trial

Caveat...

Today's primary focus:

- Vision and hearing within normal limits
- Children that can use hands to access AAC (direct selection)

Manual Communication Boards/Books

PECS (Picture Exchange Communication System)



PECS Features

- **Linguistic:** Word based, only requests until later phases
- **Symbol:** Typically personalized photos and/or Boardmaker
- **Voice:** No voice output
- **Access:** Symbol removed from velcro and passed to communication partner
- **Display:** Board and then book
- **Portability:** Book can be carried via strap
- **Operational/Other:** High level of training needed for communication partners

PECS Procedure

Getting Ready:

<https://www.youtube.com/watch?v=Hs-412lhXb0>

PECS Phases

Phase I How to Communicate

- Spontaneous Requesting
- 2-Person Prompt Procedure
- Pick up, reach, release



Phase II Distance and Persistence

- Travel to Communicative Partner
- Carry PECS Book
- Persistence across obstacles



Phase IIIA Simple Discrimination

- Highly-preferred vs. non-preferred
- 1/2 second rule
- 4-Step Error Correction Procedure



Phase IIIB Conditional Discrimination

- Correspondence Checks
- 4-Step Error Correction Procedure
- Find pictures in book



Phase IV Sentence Structure

- Construct and exchange Sentence Strip
- Backstep Error Correction Procedure
- Constant Time Delay to encourage speech



Attributes Descriptive Vocabulary

- Request specific items
- Size, Color, Shape, etc.
- Action words



Phase V Answering, "What do you want?"

- Maintain spontaneous requesting
- Progressive Time Delay



Phase VI Commenting

- Responsive Commenting
- Commenting versus requesting
- Spontaneous Commenting



www.pecs.com

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"FLEX your PECS!"

Team Skills for PECS Implementation

- All team members are trained in PECS procedure
- Two team members consistently available to be communication partner and prompter during initial phases
- All team members understand that PECS is not a comprehensive AAC system
- All team members understand that a child should move through PECS rapidly
- All team members understand that a child may be exposed to a more robust system while PECS is also being taught

PECS and Robust AAC (Pat Mirenda, 2017)

Front Door Approach: PECS

- Teaches initiation of mands
- Teaches child that communication needs a partner
- May support use of speech
- Structured procedure supports structured implementation

Back Door Approach: Light-Tech or High-Tech Robust AAC exposure using Aided Language Stimulation

- Expose child to additional communicative functions
- Expose child to variety of vocabulary (adjectives, verbs, prepositions, etc)
- Lay foundation for understanding of more complex symbolic representations (i.e. core vs. fringe-abstract vs. concrete)
- Supports “teachable moments”
- Enhances comprehension through symbol exposure

Choice Boards



Choice Board Features

- **Linguistic:** Only nouns, supports choice making (limited communicative functions)
- **Symbol:** Photos and symbols (individualized)
- **Voice:** No voice output
- **Access:** Can be passed to partner or point to board
- **Display:** Typically one page, customized number and size of symbols
- **Portability:** Boards can be mounted/positioned in various places
- **Operational/Other:** N/A

Profile: Jack

- Front Door/Back Door Approach being used
 - Front Door: Choice board to communicate quickly during challenging times (food, sensory needs, break choices)
 - Back Door: TouchChat with Wordpower being modeled across settings (spontaneous initiation of device use not yet observed)

Core Vocabulary

What is Core Vocabulary?

“Core Vocabulary refers to high frequency, multi-purpose, commonly occurring words from a range of word classes that are a central part of an individual’s AAC system” (Zangari, 2009)

“In any language that are used frequently and across contexts” (Cross, Baker, Klotz, & Badman, 2006)

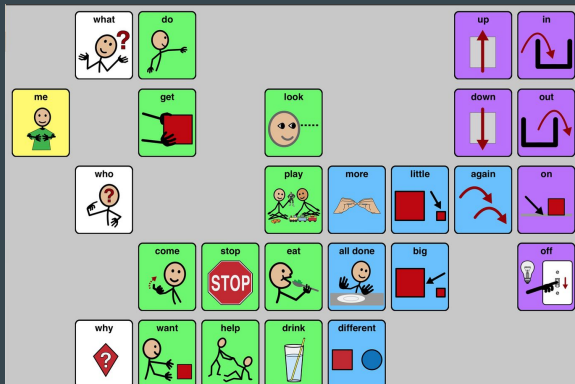
Core words tend to be pronouns, verbs, and demonstratives because they represent words that generally do not change (Stubbs, 1986). Words like "big," "little," "give," "eat," "go," and "you" are examples of core vocabulary terms used every day in many situations.

80/20

Research shows that 80% of what we say is communicated with only the 200-350 most basic words in our language (Baker & Hill, 2000). We use core words to make ourselves understood.

The remaining 20% is “fringe” vocabulary and varies widely from person to person

Core Vocabulary Board: Masked



Core Vocabulary Board Features

- **Linguistic:** Core Vocabulary word based, supports variety of communicative functions
- **Symbol:** Variety of options
- **Voice:** No voice output
- **Access:** Direct selection or scanning
- **Display:** Single page board
- **Portability:** Book can be carried
- **Operational/Other:** Video instruction available online

Profile: “Serena”

- Parent and child are English Language Learners
- SLP services being delivered via telepractice, SLP has previous core vocabulary experience
- Child has not been exposed to symbol-based communication
- Child has established play routines
- Child transitioned to high tech trial of Proloquo2Go core vocabulary board about 1 month after starting to use it, then completed successful TouchChat trial and acquired ViaPro

Core Vocabulary Exchange System



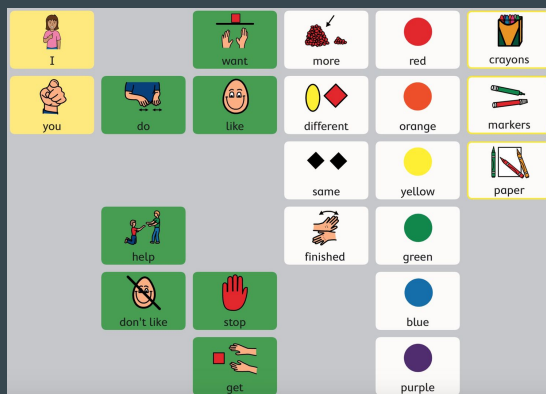
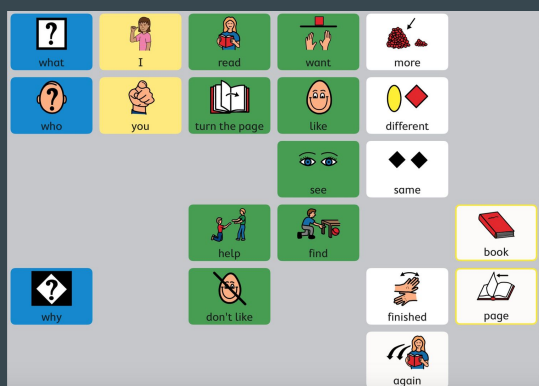
CVES Features

- **Linguistic:** Core Vocabulary word based, supports variety of communicative functions
- **Symbol:** SymbolStix and can supplement with photos
- **Voice:** No voice output
- **Access:**
 - Symbol removed from velcro, put on sentence strip and passed to communication partner
 - Can use masking
- **Display:** Fold-out board and book
- **Portability:** Book can be carried
- **Operational/Other:** Video instruction available online

Profile: Addison (video)

- Using PECS spontaneously across communication partners (Phase III)
- 20 hrs a week in ABA instruction
- Currently only communicating for requests with PECS but communication partners feel she communicates other communicative functions with gestures and voice
- Verbal imitation is emerging
- Significant increases in joint attention
- Seeks and initiates social interaction
- Has visual acuity challenges
- Shows visual curiosity with icons/2D images
- Comprehension skills far about expressive skills

Topic Boards





Topic Board Features

- **Linguistic:** Core and fringe vocabulary, can support variety of communicative functions, sometimes includes phrases
- **Symbol:** Photo or symbols
- **Voice:** No voice output
- **Access:**
 - Typically direct selection with point
 - Can use masking
- **Display:** Single board or book of boards
- **Portability:** Book/boards can be carried and/or mounted
- **Operational/Other:** N/A

Profile: “Sally”

- Team overwhelmed by voice output trial
- Very active
- Has isolated proximal and distal point
- Lots of spontaneous initiation of communication using voice, gesture, hand leading, sign approximations
- High comprehension of language
- Strong joint attention
- SLP services delivered via telepractice so modeling of system is limited

Robust Communication Books

Spontaneous Novel Utterance Generation (SNUG)

- The ability to build utterances that meet the specific needs of the moment.
- An effective AAC approach that is based on use of individual words and word combinations rather than phrases

Four Points Supporting SNUG:

- In verbal language development children learn to use individual words and word combinations
- The vast majority of the sentences we use in our daily communication are sentences we have never used before
- Data shows adult AAC users rarely used pre-stored messages- only 2% of language used
- Research shows SLPs can not predict the topics people will choose to talk about- only 10% success (Sue Balandin and Teresa Iacono)

Core and Fringe Communication Books



Available from Saltillo,
Wordpower manual
communication boards



Created using
Proloquo2Go, customized
for child

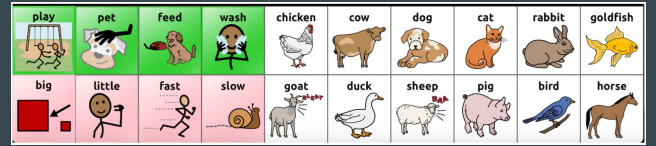
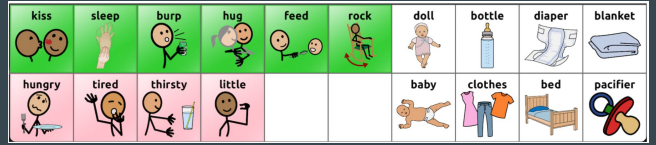
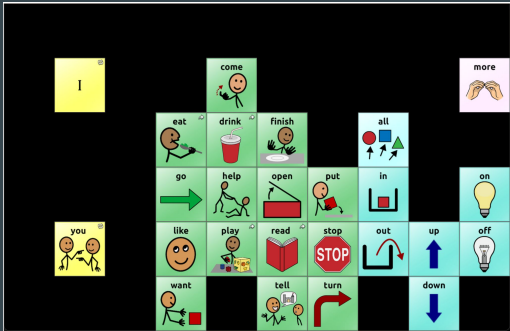
Core and Fringe Communication Book Features

- **Linguistic:** Core and fringe vocabulary, supports wide variety of communicative functions
- **Symbol:** Primarily icon-based, but can supplement with photos
- **Voice:** No voice output
- **Access:**
 - Direct selection via pointing
 - Can use masking
- **Display:** Core board with fringe flip pages (with tabs)
- **Portability:** Book can be carried
- **Operational/Other:** Construction is time consuming, templates available via Saltillo (TouchChat with Wordpower page sets)

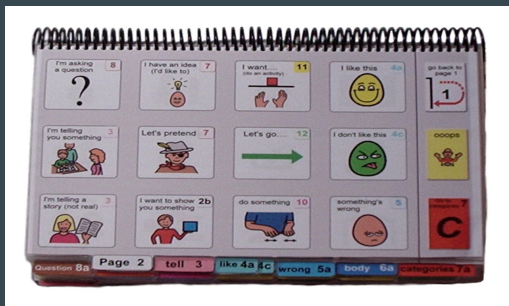
Profile: “Joe”

- High-tech AAC exploration resulted in decreased joint attention, shared engagement and interest in reciprocal play (complex relationship with technology)
- Motivated to communicate about certain topics
- Demonstrated shift of gaze
- Strong comprehension of language
- After using Core and Fringe Communication Book (Wordpower 60 Basic) for about 3 months, transitioned to Wordpower 60 Basic on iPad and was able to use meaningfully)

Core and Topic Board Hybrid



Pragmatic Organization Dynamic Display (PODD) Books: comprehensive low-tech system organized by pragmatic function



PODD Features

- **Linguistic:** Pragmatically organized, allows 1-word utterance communicators to communicate complex ideas
- **Symbol:** Icon-based
- **Voice:** No voice output
- **Access:**
 - Direct selection via pointing
 - Alternative access via Partner Assisted Scanning
- **Display:** Large communication book with tabs
- **Portability:** Book can be carried
- **Operational/Other:** Construction is time consuming, print from simPODD app

Profile: “Kathy” (video)

- Child with significant expressive communication delays
- Is socially motivated and uses body-based communication for variety of communicative functions
- Child has benefitted from visual supports, had previous exposure to topic boards and PECS system

AAC Communication Board/Book Lab

- Choose a core vocabulary board or core and fringe communication book
 - Engage in a preschool activity using board or book for one word per sentence as you narrate and describe your play
 - Create Aided Language Input Plan with picture book- read to your partner

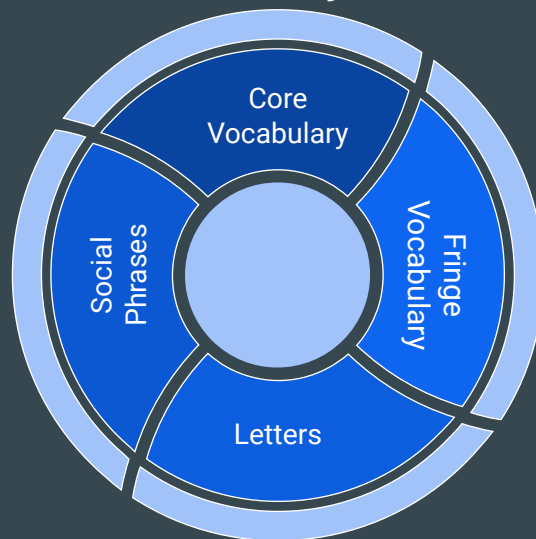
AAC Apps/Software

What makes an AAC app robust?

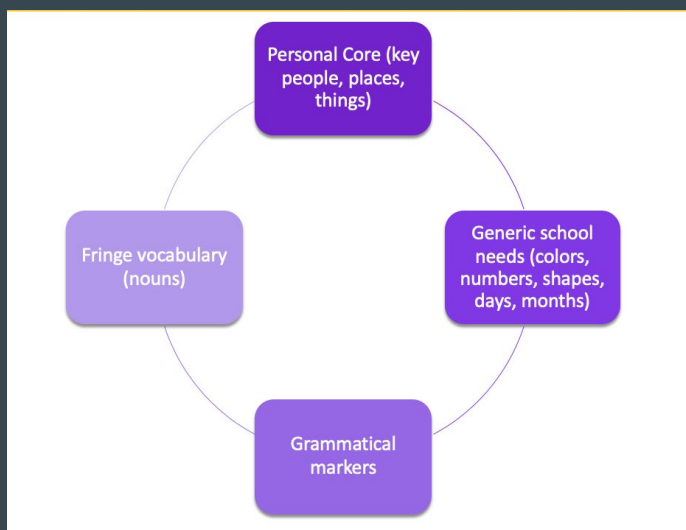
(Carole Zangari and others)

- Flexible and versatile across settings, activities and communication partners
- Wide range of word classes (verbs, pronouns, adjectives, prepositions, etc)
- At least 300 words
- Able to make morphological changes (tense, plurals, etc)
- Supports motor automaticity but allows for planned growth
- Allow for and encourage a wide range of pragmatic functions
- Word based so that children can construct sentences (SNUG)
- Text to speech
- Word prediction
- Access to letters

Four Elements of a Robust AAC System



Extended Vocabulary



AAC Apps

Categorically Organized

Features of Categorically Organized Apps

- **Linguistic:** All have core and fringe vocabulary, can support variety of communicative functions, include social phrases
- **Symbol:** All have standardized symbols and ability to take customized photos
- **Voice:** All have variety of voice options, **languages differ by app**
- **Access:** All are available for direct selection, **some also have switch scanning options**
- **Display:** All are dynamic, **a few have predictive branching. Some are hard to mask, others are easy**
- **Portability:** All are available on iPads, **some are also available on SGDs**
- **Operational/Other:** All have ability to customize programming, some are easier than others

Snap Core First (now TD Snap!)



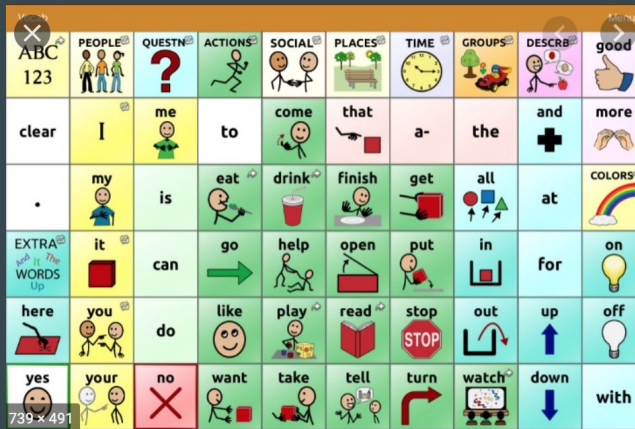
Features:

- Core Vocabulary main page
- Topic boards (bubbles, playdoh, etc)
- Can mask “on the fly”
- **Customizable size and array of buttons**
- **Quickfires page (social language)**
- Is switch accessible on iPad
- Available on iPads and SGDs
- Categorically organized
- Has accompanying app for communicative competencies and lesson plans

Profile: “Callie”

- Child with Cortical Visual Impairment
- Able to mask a variety of vocabulary
- Customize buttons to meet child’s vision and fine motor needs
- Masking of some vocabulary heightened child’s visual attention and functional use

Robust AAC Pageset: Wordpower (available on TouchChat, on PRC and TD devices)



Can be accessed using headpointing in newest iPads with facial recognition!

Has communication boards available by Saltillo

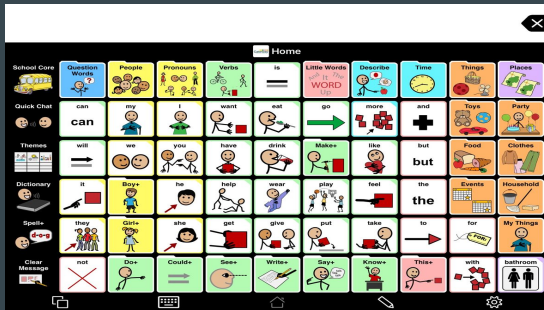
- **Predictive branching gives you logical next words to complete utterances**

- Lots of editing/setting options
- Wordpower pageset requires some literacy skills (not all cells have icons)- except for Wordpower 60 Basic which is designed for preschoolers and has more icon support
- Words organized categorically and then alphabetically

Profile: “Johnny” (video)

- Child with ASD
- Child had exposure to core vocabulary board in preschool
- SLP skilled in AAC implementation
- Child used gestures, vocalizations and body language to express a range of communicative functions
- Limited speech repertoire
- Allowed iPad in physical space right away, while not interrupting his play
- Child was interested in adult modeling of system

Robust AAC Pageset: Gateway Pageset (Available on Proloquo2Go or TouchChat or TD Snap)



- Core vocabulary based
- Available with or without symbols
- Has “thematic” pages
- **Uses less than 1.5 key activations per word**
- Utilizes Fitzgerald Key
- Somewhat complex array
- Categorically grouped
- Has Quick Chat feature

Proloquo2Go



Features:

- **Highly customizable (size of targets, number of targets, color, etc)**
- Single or 2-switch step scanning
- Gateway vocabulary set option
- Core Vocabulary available across pages
- Categorically organized
- Can make color coding very bright for high contrast
- Symbol goes into message window when selected
- Only available on iPads

Profile: “Jane”

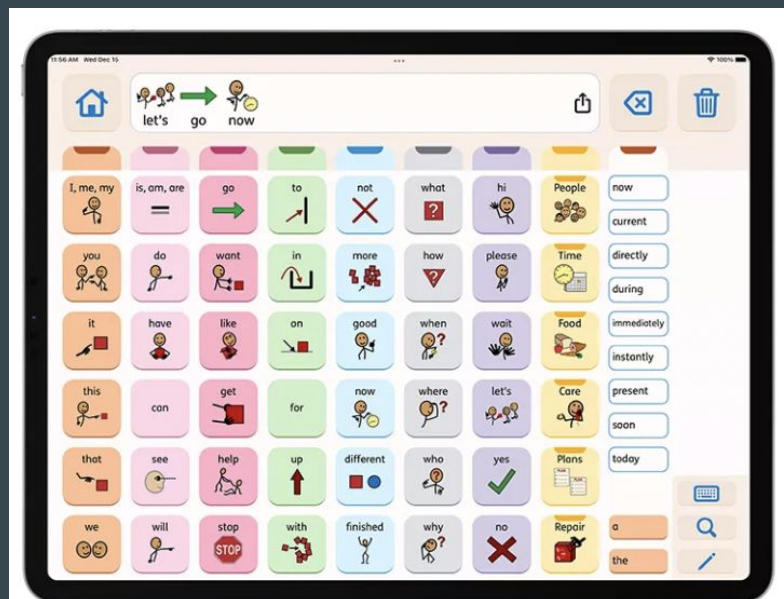
- Cerebral Palsy and visual impairment (Cortical Visual Impairment)
- Switch access needed but family found SGD cumbersome
- Auditory scanning
- Created highly customized system but could systematically grow

Proloquo

New from
AssistiveWare

Comes with Proloquo
Coach companion app
for parents

Fixed number of
buttons per page
(different from
Proloquo2Go)



Semantically Organized

Features of Semantically Organized Apps

- **Linguistic:** Both have core and fringe vocabulary, can support variety of communicative functions, include less social phrases, **able to access all vocabulary within a few activations of screen**
- **Symbol:** Both have standardized symbols and ability to take customized photos, **simples are a fixed size**
- **Voice:** Both have variety of voice options
- **Access:** Both are available for direct selection
- **Display:** Both are dynamic and **easy to mask**
- **Portability:** Both are available on iPads, **one is also available on SGDs**
- **Operational/Other:** Both have ability to add vocab

LAMP Words for Life

Features:

- Word-based
- **Unique and consistent motor plan for each word**
- All words can be accessed in 3 or less hits
- Words organized by semantic relationships rather than categories
- Can use vocabulary builder file to “mask” some vocabulary
- Can not customize size of buttons or layout
- Utilizes multi-meaning iconic encoding (Unity language), in which a sequence of icons are combined in order to access a word
- Available on iPads and SGDs



Profiles

“Helen”

- Child with comprehension that far exceeds expression
- Some motor planning challenges observed
- Has strong communicative intent
- Communicates with body, facial expression and idiosyncratic gestures
- Very socially motivated
- Excellent play skills

“Hugo”

- Child with ASD
- Has limited scope of interests
- Had wide variety of noun vocabulary using PECS
- Limited intelligible speech
- Strong shift of gaze and eye contact
- Has some difficulty with novel motor plans but learns with consistent motor practice

Speak for Yourself



Features:

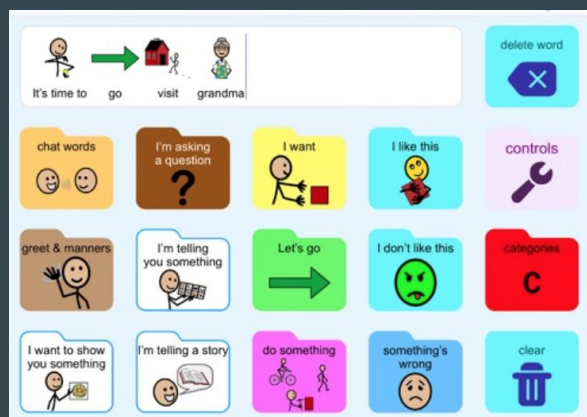
- Word-based
- Motor plan remains consistent throughout the users' lifetime
- **All words can be accessed in 2 or less hits**
- **Hold That Thought** feature for message prep (classroom presentations, etc)
- Word finder feature highlights path to word
- Can easily mask vocabulary
- Can not customize size of buttons
- Size of buttons can be difficult to access for children with fine motor or visual challenges
- Only available on iPads

Profile: "Lily"

- Child motivated to socially interact
- Parents and team who new that access to robust AAC was important
- Team skilled in modeling of AAC
- Family found support in Speak for Yourself Facebook page
- Child had ability to point and visually scan but used keyguard for precision
- Some masking was done at beginning but unmasked over short period of time

Lesser Used AAC Apps

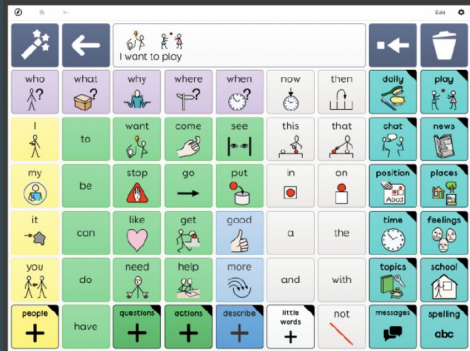
simPODD or PODD on TD Snap



- **High Tech version of Gayle Porter's light-tech PODD communication book**

- Can utilize single switch or 2-switch step scanning to access
- Core vocabulary embedded in pragmatic links
- Words not connected to pragmatic branches are organized categorically
- Can print PODD Books from app

Grid for iPad



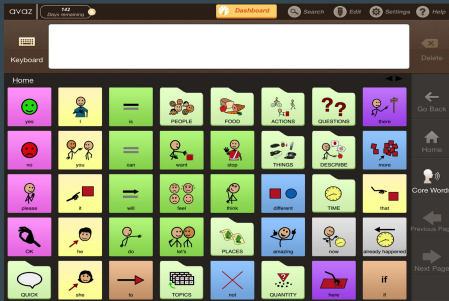
- Core Vocabulary based
- Some predictive branching
- **Available in 15 languages**
- Remote editing from Windows computer
- Super Core Vocabulary Set
 - 2500 words
 - 70 topic grids
 - Available in 30 or 50 words per page

Clicker Communicator



- Features:
- Single switch and 2-switch step scanning
 - Highly customizable
 - Core vocabulary based
 - **Has Big Keys zoom feature for children with fine motor and vision challenges**
 - Three vocabulary sets

Avaz



Features:

- Customizable
- Keyboard and word prediction
- Separate core vocabulary page
- **Zoom feature when activate cell to support children with vision challenges**
- **Available on iPad and Android**
- Many features on front page can be distracting for user
- Not as much vocabulary available as other apps

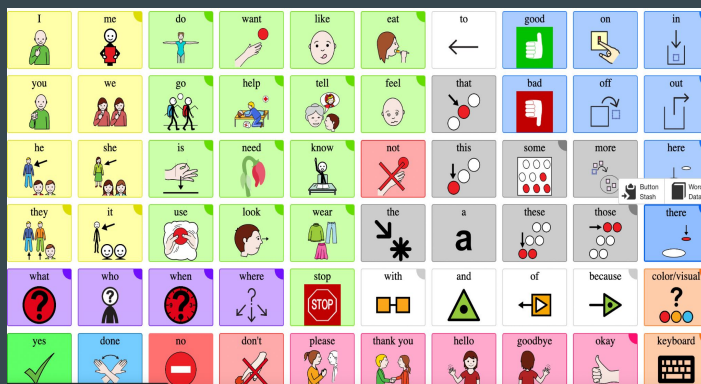
Sono Flex



- Combines core and topic-based vocabulary
- Can get free version
- **Available on iPad and Android**
- Can't customize size of cell or number in array
- Only speaks when message window is activated
- Profile: Child in Brazil, needed full app in Brazilian Portuguese without programming demands

Coughdrop

- Cloud-based
- **Can translate into many languages**
- Some core vocabulary page sets available
- **Available on iPad and Android**



Profile: Child in Italy, needed a customized core and fringe vocabulary system that could be toggled between English and Italian

Visual Scene Displays

What is a Visual Scene Display?

Extensively researched by Janice Light

- Use Snap Scene or GoTalkNow using **photos** and **hotspots**
- Hotspots are cells drawn around a specific area of the photo. When touched recorded speech is activated.
- Create within natural communicative settings (classroom, home, outside, etc)
- Provide context for vocabulary learning
- Low working-memory demands
- Create VSD “in the moment”, *during play or social interaction* (very important!!)
- Create with the child present in order to capture the child’s interest
- Gives vocabulary a context!
- Can be used as supplement to robust AAC system

Snap Scene



Go Talk Now



Speech Generating Devices

Speech Generating Device Vendors (available to us in VT)

- Prentke Romich Company
- Saltillo
- TobiiDynaVox
- NuMotion (Smartbox and Forbes)

iPad Bundles (Funded as SGDs)



Via Pro with I AMP Words for Life and Active Wri

PRC Via Pro:
iPad with LAMP
app and strong
case



Saltillo Via Pro:
iPad with
TouchChat app
and strong case



TobiiDynaVox SC
Tablet
iPad with TD Snap

Speech Generating Devices

Many student's needs can be accommodated within iPad app frameworks.

- However, if a child needs to access a communication system with alternative access then using a dedicated SGD is warranted
- If child needs a strong, durable device with tech support than using and SGD is warranted
- If a child needs a more responsive screen due to fine motor challenges
- If child has complicated relationship with iPads that prevent child from using iPad as communication tool (this is a tricky one!)

PRC

- Main SGD Series: Accent (1400, 1000, 800)
 - Look Eye Tracking System
 - NuPoint Head Tracking
 - Switch accessible (bluetooth)
- Main software: Unity
 - Also has Wordpower, Core Scanner and others
- ViaPro (iPad bundle)
- Rep: David Kay



Profile

Accent 1400 with Eye Gaze: “Amy”

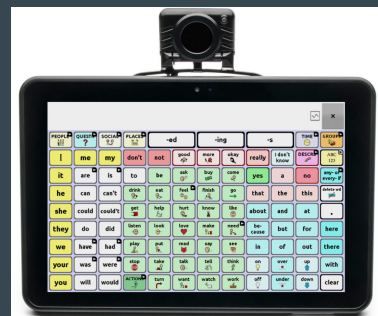
- Child with Cerebral Palsy
- Unity software
- Has strong social and communicative motivation
- Limited fine motor precision
- Phase II CVI
- Strong ability to sustain visual attention

Accent 1000 with Switch Scanning: “Andy”

- Child with Cerebral Palsy
- CoreScanner software
- Phase 1 CVI, limited ability to use vision functionally when starting with device
- Using 2 switch step scanning
- Had some exposure to Partner Assisted Scanning
- Had some prior experience with scanning on Proloquo2Go
- Progressed to direct selection over time as fine motor and vision improved

Salttillo

- Main SGD Series: NOVA chat (5, 8, 10, 12)
 - Integrated communication system on Android platform
 - Switch accessible (bluetooth)
- Chat Fusion (headpointing, switch access)
- ViaPro (iPad)
- Main Software: Wordpower
- Rep: David Kay



Profile: “Logan”

NovaChat 10 with Wordpower

- Child with ASD
- Very active and “on the go”
- Strong comprehension of language
- Need for a system that was durable and portable

TobiiDynaVox

- Main SGD Series: I-Series (110)
- I-13 and I-16 (eye controlled SGDs with integrated eye gaze module)
- Main software: Snap + Core First and Communicator 5
- Rep: Matt Ferlito



Profile: “Betsy”

Eye Gaze on I-Series (Core First)

- Child with Cerebral Palsy
- Need for customizable cell array and size due to some difficulty during trial with eye gaze precision
- Unity semantic relationships were challenging for family and child
- Categorical organization appears to be better match

NuMotion: Forbes and Smartbox

- Forbes Proslate (iPad Bundle with a variety of apps)
- Forbes Winslate (eye gaze accessible with Grid or Core Word software)
- Grid Pad 8, 10, 12 (eye gaze accessible wit Grid software)
- Rep: Brendan McCarthy



AAC High Tech Lab: Stations

- With a partner choose 3 sentences from list and construct each sentence on 4 different AAC options
- Report out