

South Carolina
Assistive Technology Program
 CENTER FOR DISABILITY RESOURCES
 SCHOOL OF MEDICINE
 UNIVERSITY OF SOUTH CAROLINA



Communication Supports for Adults

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Augmentative and Alternative Communication and Behavior

All behavior is communicative.
 Everyone communicates!



Communication is a Right

► It is the position of the American Speech-Language-Hearing Association (ASHA) that communication is the essence of human life and that all people have the right to communicate to the fullest extent possible. No individuals should be denied this right, irrespective of the type and/or severity of communication, linguistic, social, cognitive, motor, sensory, perceptual, and/or other disability(ies) they may present.




Prerequisites for the Use of AAC
NONE!

Kangas & Lloyd, 1988
 Beckelman & Mironch, 2005



Myths about Augmentative Communication

- 1) Augmentative communication will hinder speech improvement.
- 2) Augmentative communication system makes people lazy and stop talking.
- 3) Augmentative communication is the last resort.
- 4) Once an individual begins using a speech-generating device he or she must use it for the rest of their life.
- 5) Intervention should focus on articulation skills or Augmentative communication, but not both.
- 6) The individual must:
 - Be completely nonverbal.
 - Have good cognitive skills.
 - Learn augmentative communication communication systems quickly.



Benefits of AAC

- Adults with partial speech or poor articulation benefit from AAC.
- AAC is most beneficial when used in conjunction with spoken language, gestures, vocalizations, and/or sign language.
- Some AAC is static and is a reminder of the verbal or sign direction. The individual can refer to the communication symbol after the verbal or sign cues are gone.
- AAC should be taught and used in natural contexts.

Benefits of AAC

- AAC is typically recommended as one of the many techniques that can be used to:
 - reduce sound error
 - improve multi-syllabic sound sequencing
 - cue speech and language
 - cue longer utterances
 - facilitate conversation
 - promote appropriate behavior

Assessment

Identification of participation and communication needs.

A) Some adults want to be active in the community as long as possible

Communication System :

- Self-contained
- Compact
- Fully portable
- Internet accessible
- Equipped with phone capabilities

B) Some adults center their lives in their home environment.

Communication System:

- Movable or Portable
- Heavily reliant on facilitator for eye pointing, lip reading, and residual speech

Assessment

Building Consensus

- 1) Identify communication needs
- 2) Assign each a level of importance

People want the capabilities of their communication system to mirror functions of natural communication.



Augmentative Communication Assessment

1. Determine current functional levels (hearing, vision, cognitive, literacy, fine and gross motor, and sensory skills)
2. Determine communication levels.
3. Predict future levels of communication effectiveness (always assume competence!)
4. Identify functional communication goals and treatment options.
5. Select AAC treatment strategies.
6. Select AAC device and accessories.
7. Procurement (may include funding requests)
8. Training
9. Follow up

What Does Expressive Communication with Augmentative Communication Look Like?

It should look like a conversation.

There should be at least two communication partners. The communication partners take turns commenting, questioning, answering, joking, and sharing information.

Assessment

- 1) Identification of participation and communication needs.
- 2) Assessment of capabilities to determine available and appropriate communication options.
- 3) Assessment of constraints.
- 4) Assess for today and assess for tomorrow.
- 5) What needs have or have not been met?
- 6) It's a dynamic system!



AAC Assessment

AAC Genie

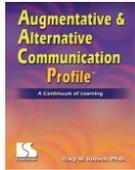


Subtests:

- Visual Identification
- Visual Discrimination
- Noun Vocabulary
- Function Vocabulary
- Verb Vocabulary
- Category Recognition
- Word Association
- Category Inclusion
- Category Exclusion
- Pixon Core Vocabulary
- Unity Core Vocabulary
- Unity Icon Patterns
- Picture Description
- Word Prediction

AAC Assessment

AAC Profile:
A Continuum of Learning
(Kovach, 2009)
East Moline, IL:
LinguiSystems.



- Identify areas of strength and those that need intervention and instruction.
- Determine functional, long-range outcomes and the steps toward achieving them.
- Compare individual performance over time toward desired outcomes.
- Identify ways that AAC support team members can define and coordinate their roles for intervention and instruction programs.
- Identify and provide optimal learning environments.

AAC Assessment

Functional Communication Profile Revised (FCP-R).
East Moline, IL:
LinguiSystems.



Subtests:

- Sensory/Motor
- Attentiveness
- Receptive Language
- Expressive Language
- Pragmatic/Social Language
- Speech
- Voice
- Oral
- Fluency
- Non-Oral Communication

Criterion-referenced

AAC Assessment

TASP



Subtests:

- Symbol size and number
 - Grammatical encoding
 - Categorization
 - Syntactic performance
- Establishes basals and ceilings for each subtest.

AAC Assessment

Communication Matrix

Category	Subcategory	Item	Level 1	Level 2	Level 3	Level 4	Level 5
Symbol	Size	Small	0	0	0	0	0
		Medium	0	0	0	0	0
		Large	0	0	0	0	0
		Very Large	0	0	0	0	0
Number	Quantity	1	0	0	0	0	0
		2	0	0	0	0	0
		3	0	0	0	0	0
		4	0	0	0	0	0
Category	Type	Object	0	0	0	0	0
		Animal	0	0	0	0	0
		Plant	0	0	0	0	0
		Person	0	0	0	0	0
Syntactic	Structure	Simple	0	0	0	0	0
		Complex	0	0	0	0	0
		Advanced	0	0	0	0	0
		Expert	0	0	0	0	0

Answer a series of questions.
Lets you view progress over time.

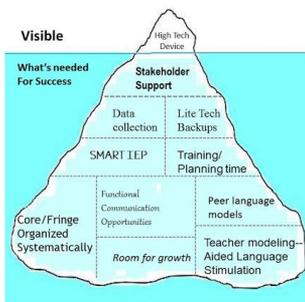
<https://www.communicationmatrix.org/>

AAC Assessment



The WATI Communication Section was written for assessing students with communication needs, but it can also be used for adults.

<http://www.wati.org/content/supports/free/pdf/ASNAT5thEditionJun09.pdf>
Communication: Section 4



AAC Devices: Merely the Tip of the Iceberg-- There's More to Good AAC Implementation Than Meets the Eye (June, 2016) Ruth Morgan M.S. CCC-SLP and Ashley Robinson M.S. CCC-SLP, ATP



Message Selection

- Requesting wants and needs
- Making choices
- Confirming or denying
- Rejecting and protesting
- Gaining attention
- Providing greetings, farewells, social niceties
- Expressing feelings
- Making comments
- Asking for information or help
- Telling jokes
- Connecting with peers
- Asking questions



Message Selection

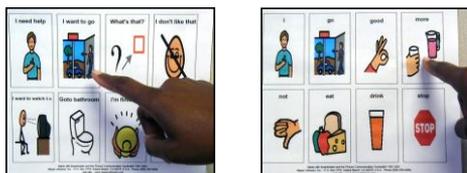
Core Vocabulary:

- A few hundred words that make up approximately 80% of what a person says.
- Note that the most frequently occurring words of older adults (using real voice or synthesized voice) do not include many nouns.
- Nouns and verbs are the easiest to represent in a concrete format. Other vocabulary is abstract when illustrated.



Message Selection

Use single-word messages whenever possible because they allow for generative language and utterance expansion. (Anderson & Baker, 2004)



Amyotrophic Lateral Sclerosis

Bulbar ALS

- 1) Affects 1/3 of the individuals with ALS.
- 2) Affects speech and swallowing first. Rapid progression of approximately 2 years.

- 3) Dysarthria of mixed flaccid-spastic type occurs early.

Spinal ALS

- 1) Affects 2/3 of the individuals with ALS.
- 2) Upper or lower extremity weakness.
- 3) Dysarthria of mixed flaccid-spastic type occurs later.



Amyotrophic Lateral Sclerosis

Acceptance of AAC

- 1) Caregivers of individuals with ALS are less willing to accept AAC than the individuals with ALS.

Timing

- 1) AAC assessment should begin when speech rate drops from 160 wpm to 80 wpm.
- 2) SLP can help the individual select AAC and help them learn it before he/she needs it.

Facilitation

- 1) Facilitators provide support thru instruction, adjust settings/positioning, provide help with socialization.



Amyotrophic Lateral Sclerosis

Intervention

- 1) No speech d/o. Monitor speaking rate.
- 2) Speech rate d/o, but speech still intelligible. Initiate assessment.
- 3) Educate about multimodal systems, both low tech and higher tech options.



<https://www.youtube.com/watch?v=pLb6-Oi3uR0&index=4&list=PL4DBE69C482049105>



Amyotrophic Lateral Sclerosis

Intervention

- 1) Partner Assisted Communication.
- 2) Eye gaze low tech boards
- 3) Eye gaze electronic devices



Multiple Sclerosis

- Dysarthria is the most common communication problem.
- Dysphonia is also experienced by some.
- Approximately 41% of people with MS demonstrate speech not consistent with "normal" speech abilities.
- Only 23% of same individuals reported speech and/or communication disorder.



Multiple Sclerosis

Middle Phase of MS

- Communication problems experience success with alphabet board supplementation with first letter cueing.

Late Phase of MS

- AAC intervention is very personalized due to concomitant factors of vision loss, impaired cognitive skills, spasticity, ataxia and intentional tremors.



Multiple Sclerosis

Late Phase of MS continued

Assess:

- Language Skills
 - ~ 2% have pervasive language impairment (e.g. aphasia)
 - ~ 13% have mod. to severe language impairment (word finding, verbal and written organization)
 - ~ 32% have mild language impairment (dysarthria)



Multiple Sclerosis

Late Phase of MS continued

- Cognitive Skills
 - poor memory, reasoning, processing and personality changes
- Vision Skills
 - may benefit from auditory scanning AAC
- Motor Skills
 - tremors may interfere with switch scanning



Multiple Sclerosis



<https://www.youtube.com/watch?v=RERdj1URaF8>



Guillain-Barre Syndrome

- Autoimmune disorder that attacks peripheral nervous system
- Onset does not include speech impairment
- Evolves to include severe speech impairment
 - dysarthria or anarthria
- AAC interventions
 - Yes/No
 - Eye gaze
 - Partner assisted visual and auditory scanning
 - Switch use with head or eye lid
- Functional speech may return



Guillain-Barre Syndrome



 Stanley Iyadurai, MSc, PhD, MD
Neurologist

<https://www.youtube.com/watch?v=8IUjdqFttUY>



Parkinson's Disease

Early Phases

No AAC required

Middle Phase

Reduced pitch and volume
- Speech amplifier

Late Phase

Multimodal communicators include natural voice and AAC for communication breakdowns
- Text-to-speech



Parkinson's Disease

Late Phase (Continued)

- Motor skills severely affected
 - Rest hand on low tech alphabet board
 - May need keyguard
 - Range of reach with fingers can be affected and benefit from a smaller alphabet



Parkinson's Disease



The way i talk frustrates me.

<https://www.youtube.com/watch?v=KKmHKzh2t2c>



Voice Amplifiers



Zygo Wireless Voice Amplifier



ChatterVox



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Brainstem Stroke

- Dysarthria or Anarthria
- May impair motor control of limbs
- All cases typically benefit from AAC after insult
- Approximately 75% will need AAC the rest of their lives while the rest regain functional speech



Brain Stem Stroke

Early Phases

- Rapid fatigue common
- Yes/No response system
- Nurse/caregiver call button
- Eye Gaze
- Partner Assisted Communication
- Patient selects message, word, letter



Brain Stem Stroke

Middle Phase

- AAC assessment for a more permanent solution
- If cortical or subcortical sections are unimpaired, language impairment is probably avoided
- Tactile and positioning senses may be affected



Brain Stem Stroke

Middle Phase (continued)

- Electronic pointer mounted to glasses for low tech communication board use
- Eye gaze technology

Late Phase

- AAC system set up
- Caregivers trained
- Socialization



Brain Stem Stroke



<https://www.youtube.com/watch?v=1yVQkxBF0ts>



Severe Aphasia

AAC Communicators

- The ability to comprehend and manipulate words, letters, pictures is slowed or impaired and greatly affects the ability to communicate using aided communication



Severe Aphasia

Partner-Dependent AAC Communicator

- 1) Global aphasia
 - Have difficulty with connecting photos, pictures, or text with their referent
- 2) Intervention
 - May start therapy with reinforcing gestures and joint attention
 - Object symbols for requesting basic wants and needs
 - Photos symbols for making choices
 - Line drawing symbols



Severe Aphasia

Contextual Choice AAC Communicator

- 1) Global, Severe Broca's, Transcortical Motor, Severe Wernicke's aphasia
 - Can connect photos, pictures, or text with their referent
 - Use gestures like pointing to make choices
 - Have difficulty with initiation and topic maintenance
 - Answers yes/no questions



Severe Aphasia

Contextual Choice AAC Communicator

- 2) Intervention
 - Answers Wh questions with printed words, scale, or map
 - Answers yes/no questions with gestures
 - Points to people, objects, or pictures to gain more information
 - Attends to augmentative communication device



Severe Aphasia

Transitional AAC Communicator

- 1) Fluent or nonfluent aphasia
 - Initiate interactions
 - Point, draw or speak
 - Benefit from communication notebook and/or SGD
 - Fluent type often have comprehension problems
 - Fluent type are not able to monitor the unintelligibility of their speech



Severe Aphasia

Transitional AAC Communicator

2) Intervention

- Initiating conversation using aided language
- Point to communication partners to indicate they want to start a conversation
- Visual scenes for telling narrative (high or low tech)
- Role playing with SGD



Severe Aphasia



<https://www.youtube.com/watch?v=AooDQZdOyE&list=PL4DBE69C482049105&index=5>



Communication thru Writing



Visual Scenes



Visual scenes can be a static or dynamic display.

Support navigating options to communicate messages.



Partner-Assisted Communication (Two-Step Eye Gaze) Communication Aids

a	e	i	o	u	q
t	n	d	m	y	b
r	h	c	g	w	k
s	l	f	p	v	j
space	x	z	.	?	,

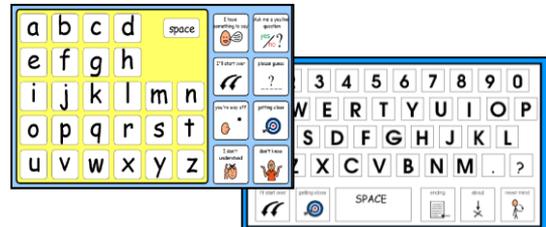
Layout according to frequency of letter use



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Low Cost AT Solutions: Communication Devices

Alphabet Boards



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Low-Tech Eye Gaze Communication Aids



Topic Board



Eye Gaze Board

Two-Step Eye Gaze Communication Aids



- 1) Look at block border to select color background of letter or number.
- 2) Look at block to select letter based on the color border selected in step #1.



MegaBee

Picture Communication Aids



<http://www.amyspeechlanguagetherapy.com/communication-boards.html>

High Tech Voice Output Communication Aids



Indi by Tobii-Dynavox



NovaChat by Saitillo



Accent by Prentke Romich

Wego by Talk to Me Technologies



High Tech Voice Output Communication Aids



Accent 1400 with Nu-Eye Tracking System by PRC



TTMT Zuvo w/ Eye Speak



Tobii I Series

Alternative Direct Access



Head Mouse Nano "plug 'n play"



SmartNav Not "plug 'n play"



Tetra Mouse "plug 'n play"

Types of Access to AAC

Direct Selection

- Use a finger, head pointer, mouth stick, or eye to select the desired message
- Low, Moderate, or High Cognitive Demand
- Low, Moderate, or High Physical Demand

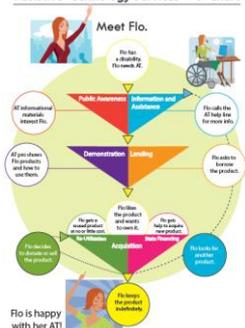
Indirection Selection

- Use a switch to move through a series of potential messages to select one message
- Higher Cognitive Demand
- Low Physical Demand

AAC: Social Media and More

- SKYPE
- FaceBook
- Texting
- Emailing
- Phone
- Environmental Control using Amazon Echo
- Photo Album
- MP3 Player

Assistive Technology Services "Flo" Chart



SCATP Activities

Training and Information and Assistance

Comprehensive training schedule



Telephone assistance



SCATP Activities

Demonstration/Consultation

Demonstrate AT devices and provide consultation services to AT Teams to assist individuals in making informed choices.



SCATP Activities

Device Loan

Short-term (two to four weeks) loans of AT devices.



SCATP Activities

Assistive Technology Reutilization in SC



1) **SC Assistive Technology Online Exchange** connects people who have AT with people looking for AT. See or post AT items for sale, for free, or create a list of needed items.

<http://scatp.med.sc.edu/scatpexchange.htm>



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SCATP Activities

Assistive Technology Reutilization in SC



2) **SC Device Reuse** provides a place to drop off items at the SC Assistive Technology Program where the items are sanitized and readied for the next person to use.

If you are looking for equipment to pick up from SCATP, contact Alli Upchurch at alli.upchurch@uscmed.sc.edu or 803-935-5273.



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SCATP Activities

Public Awareness
Annual Assistive
Technology Expo
(Free!)



Held each year in March.
Check
<http://scatp.med.sc.edu/>
for location and date of
the next AT Expo.



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SCATP Activities

Public Awareness

SCATP website

<http://scatp.med.sc.edu/join.htm>

Learn about the latest AT opportunities through the "SC Assistive Technology Online Network" listserv.

To join the SC Assistive Technology Online listserv, e-mail Carol.Page@uscmed.sc.edu or call 803-935-5301.



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