


**Domains of Assessment in
Augmentative Communication and
Feature Matching to Patient Needs**

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When doing an
assessment with person with
complex communication
needs, remember.....

**“Our Lives Teach
Us Who We Are”**

Salman Rushdie



Before you determine a person does **NOT** have a skill or competence -
presume
you assessed it wrong!




**All People
Communicate**



“...we have discovered increasingly that communication has only one prerequisite; and it has nothing to do with mental age, chronological age, mathematical formulae or any other models that have been developed to decide who is a candidate and who is not. That is because breathing is the only prerequisite that is relevant to communication.”

Pat Miranda, 1992



“As long as people consider my brain useless and my facial expressions and sounds meaningless, I was doomed to remain voiceless”
Ruth Sienkiewicz-Mercer



AAC ≠ Technology



AAC assessment: WHY
It is NOT to choose a tool or device

Goals for introducing AAC

- Equalize the Gap...
- Promote greater participation
- Enhance vocational opportunities
- Promote interpersonal interactions
- Reduce frustration associated w/ comm. failure
- Enhance language comprehension
- Facilitate speech development
- Serve as an organizer of language
- Enhance speech intelligibility or *perception*

Definition of 8 Hour Non-speaker

The term *eight hour non-speaker* refers to individuals who speak but the intelligibility of their speech is influenced by the familiarity of the listener and the content (especially familiarity and technical nature) of the expressed information. Accordingly, the person considered an eight hour nonspeaker is understood by familiar listeners (most often includes persons from the home environment) and experiences communication difficulties during the 'eight hours' they are at work, school, etc.

Definition of 24 Hour Non-speaker

Baker's

Motivation		
Physical Effort	Cognitive Effort	Time

My first questions in every assessment:

- What is MOST motivating to him/her?
- Is s/he frustrated with communication breakdown?

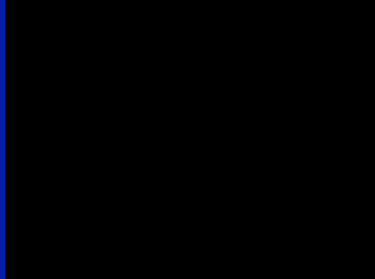
If you focus on the needs/motivations/
frustrations of others - you are doomed!



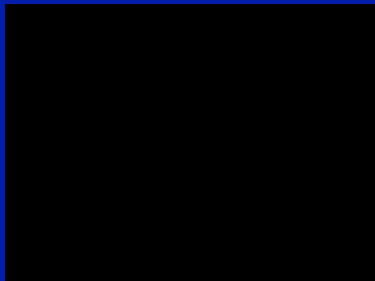
Augmentative and Alternative Communication: *Profiles of AAC Candidates and Strategies*



Emerging communicator



Context Dependent Communicator





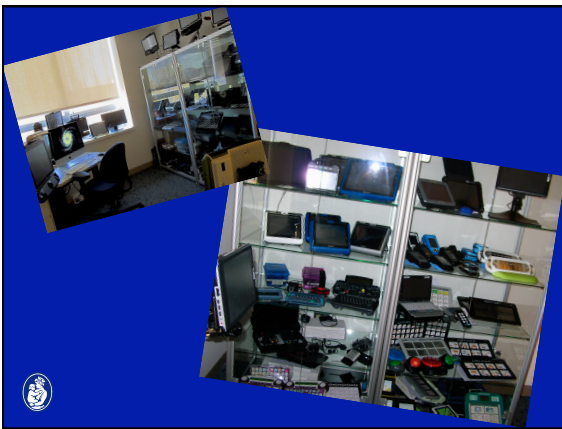
Many communication techniques that must be considered



Patient video or photos

Patient video or photos

Patient video or photos



Emerging Communicator

CASE examples:

Pediatric: 7 year old

- DX: Miller Diecker Syndrome, seizure disorder, severe motor impairment, possible vision and hearing compromise. No symbolic communication, will reach for items in the environment and responds positively when others engage her. Lives with parents and siblings and attends an educational collaborative.



Adult: 47 year old

- DX: Severe to profound intellectual impairment, ambulatory, no concerns with hearing, may be near sighted, lived in an institutional setting now lives in community residence for four months, does not demonstrated symbolic knowledge, behavior is interpreted by others for communication



Emerging:

An "Emerging" communicator does not have a **RELIABLE** method of **EXPRESSIVE** communication through **SYMBOLIC** means

- communication
 - Facial expressions
 - Body language
 - Gestures and vocalizations or other non-symbolic communication



Emerging:

Emerging Communicators do not have the tools to communicate beyond the "here and now". They do not have a method of expressing symbolic communication reliably.

This may NOT be due to intellectual ability but may be related to **OPPORTUNITY**



Goals should focus on:

- providing the individual with both the means and opportunities to communicate effectively with an increasing number of communication partners and
- determining preferences
- focus on developing causality, means-end understanding and intentional communication
- fostering symbolic communication learning through structured and incidental opportunities
- engineering environment to support opportunities
- learning about unintentional and intentional



Overall, intervention for the Emerging Communicator must focus on:

- establishing the first method of reliable symbolic expression,
- increasing opportunities for interaction with diverse partners
- expanding communication beyond “here and now” topics.



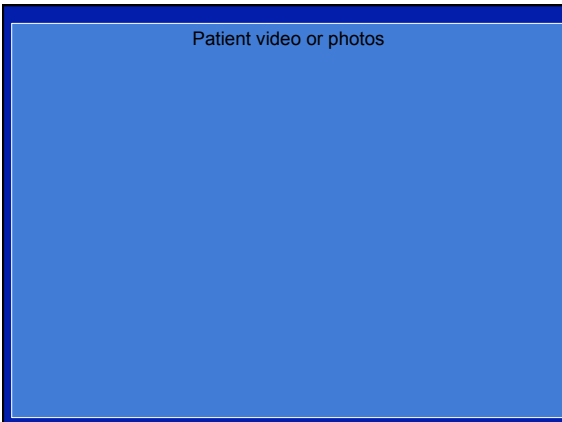
According to Blackstone and Hunt-Berg (Social Networks), an *emerging communicator*

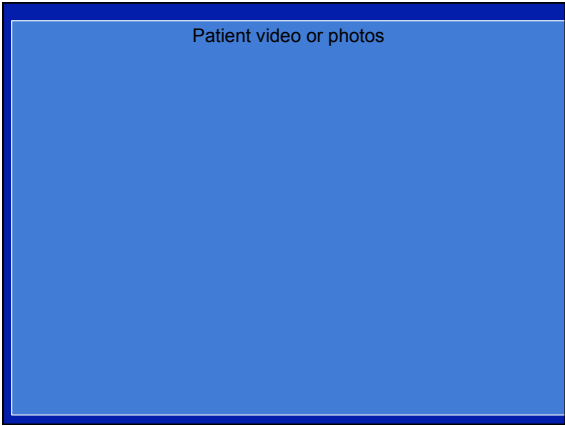
- may use a few rote signs or utterances or a very limited voice output communication device, but these communicative forms are also used inappropriately at times.
- is unable to communicate concepts beyond the “here and now” unless their partners have shared experiences, can guess their intent and/or set up highly structured and artificial trials.
- In some cases, the individual may be capable of considerable symbolic expression but has not been provided a system that meets his/her motor, visual or symbolic requirements.
- In other cases, the individual does not yet function at a symbolic level. These individuals may use body language to communicate yes/no for acceptance or rejection, but there is no reliable use of yes/no signals for communication beyond the immediate context.



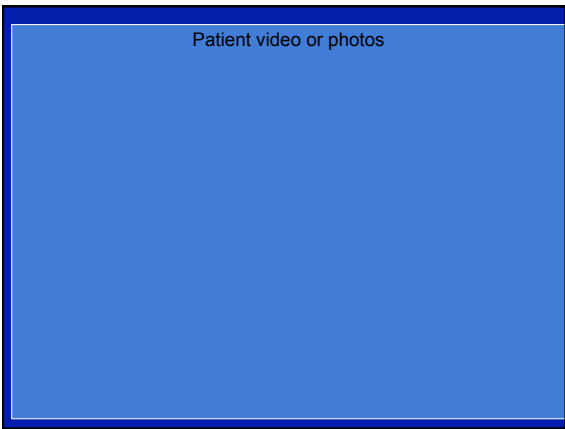
The term “emerging communication” is not intended to describe the individual’s potential. It only refers to current communication strategies

Patient video or photos

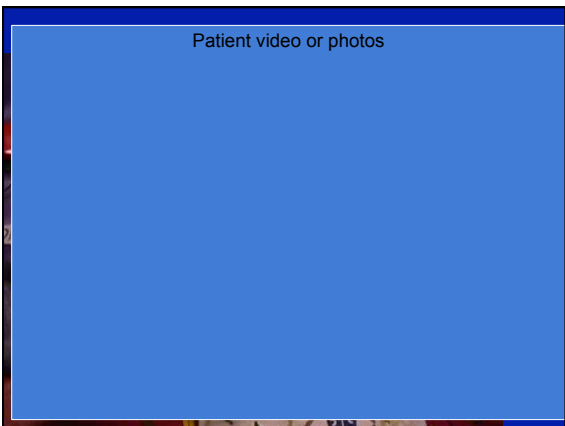




Patient video or photos

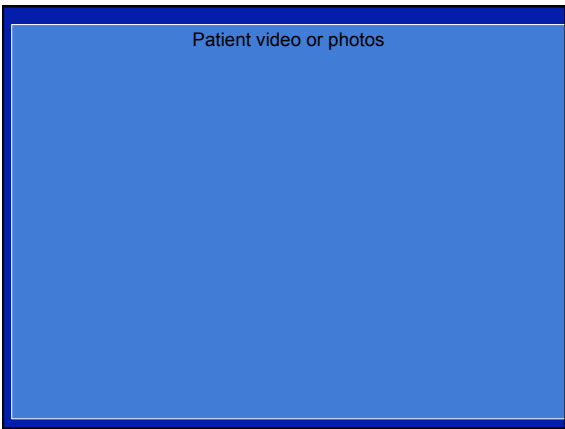


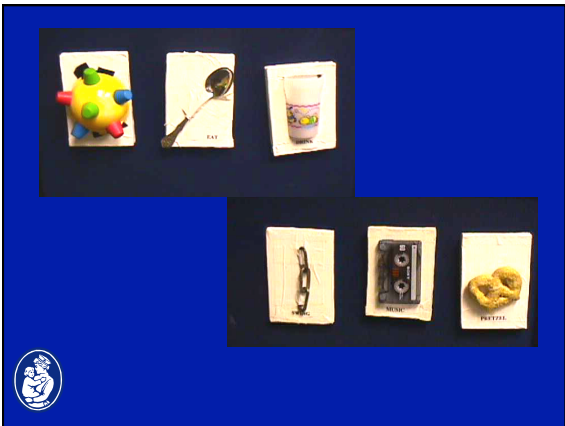
Patient video or photos



Patient video or photos



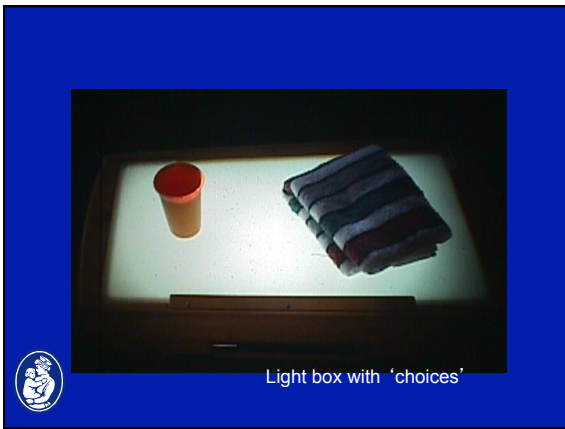






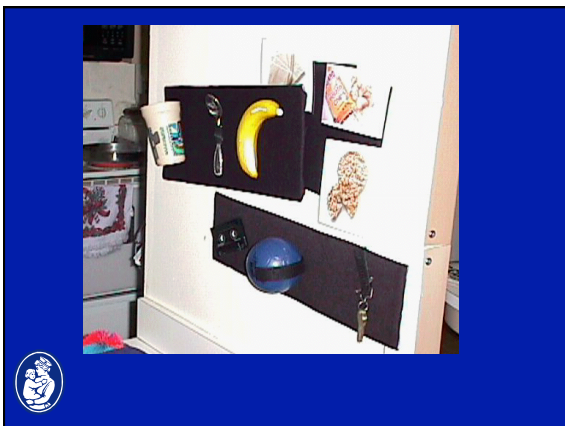
Object temptations

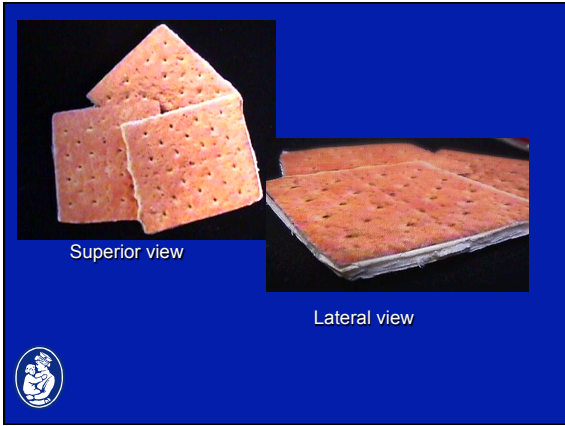


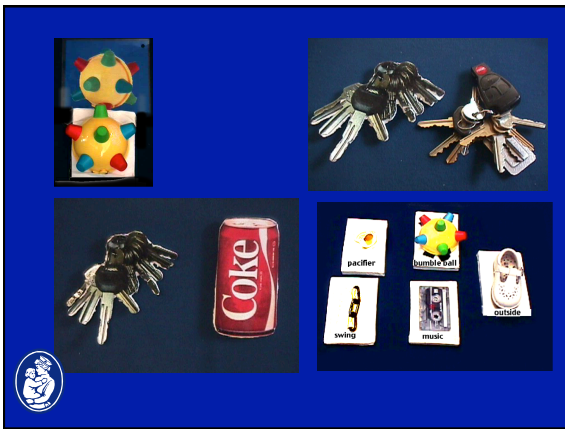


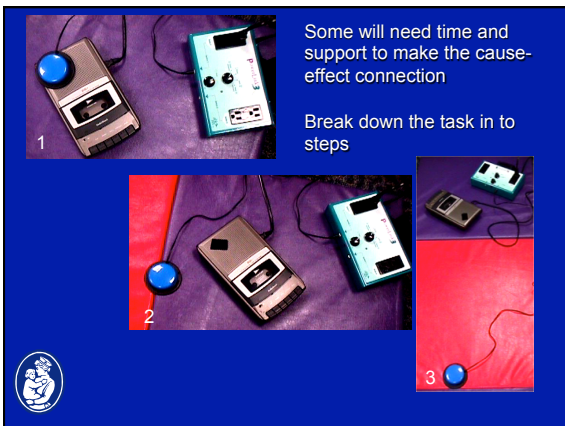
Light box with 'choices'

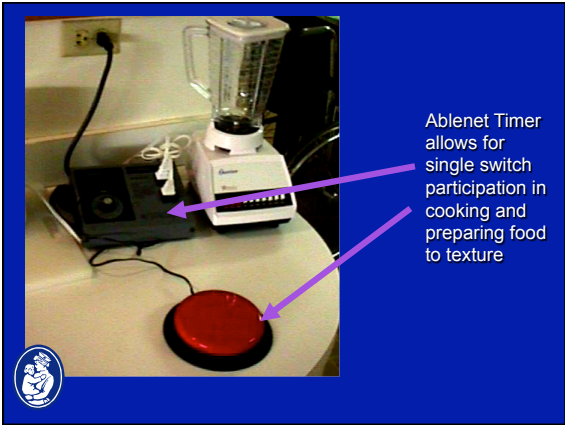














II. Context Dependent:

A "Context-Dependent" Communicator **SYMBOLIC COMMUNICATION** that is **RELIABLE**, but it is limited to particular **CONTEXTS** or **PARTNERS**

What might keep someone from advancing to "independent"?

- Limited spelling ability
- Vocabulary - for only particular contexts
- Vocabulary - not personal or useful
- Limited experience with new partners
- Limited opportunity to practice communication in natural contexts
- Hidden hearing impairment
- Hidden vision impairment
- Mismatch of device and motor control
- Fear of AAC techniques
- Low expectations of other people
- Lack of opportunities to communicate
- Lack of AAC service



Context Dependent Communicator

CASE examples:

Pediatric: 10 year old

- D/C: Cerebral Palsy, moderate unilateral hearing impairment, no concerns with vision. Uses wheelchair for mobility. Used aided and unaided strategies including vocalizations, invented gestures, up to 30 standard signs, topic communication boards and a multi-level digitally recorded communication device with overlays changed by others. Will initiate communication of routine preferences and interests with familiar partners. Is integrated in 4th grade class with a 1:1 aid and an inclusion specialist who modified curriculum. Despite still with current tools, she relies heavily on prompts from partners to communicate beyond needs and rehearsed routines.



Adult: 29 year old

- D/C: Global developmental delay, moderate intellectual impairment, no concerns with hearing, near sighted but often does not like to wear glasses, lives in home supported by DDS with three other men. Continues to use behavior to communicate (yes!) but with familiar partners will use digitally recorded device and recently began initiating changing overlays on device to access mobility that is out of context. Has a communication notebook with symbols and some text and will use to communicate in routines at home, at supported work site and in familiar places in community (at favorite restaurant).



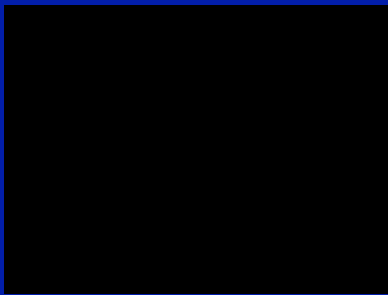
According to Blackstone and Hunt-Berg (Social Networks), a Context Dependent Communicator *is an individual who:*

- has reliable symbolic communication but may still be limited to specific contexts or partners for two reasons.
 - First, some individuals can communicate only with highly familiar partners because they rely on severely unintelligible speech or customized communication strategies, which require partner familiarity.
 - Second, some individuals are able to communicate only in limited contexts because they do not have access to sufficient and/or appropriate vocabulary.
- Are unable to spell well enough to generate novel utterances, so they are dependent on others to select and pre-program vocabulary for them.
- May rely on prompts from others, may not recognize unfamiliar people as valid communication partners without modeling/support
- May not try to communicate in some situations due to lack of vocabulary and lack of confidence of success.

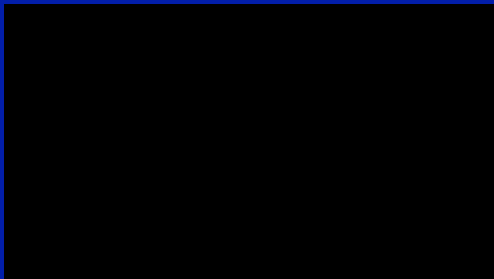


- AAC Intervention must focus on:
- Increasing access to vocabulary and symbolic knowledge
- increasing use of AAC strategies
- decreasing dependence on others and
- developing *language and literacy skills* to maximize communicative independence.

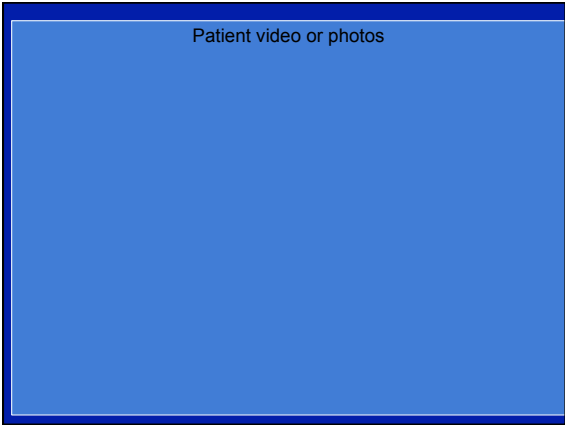


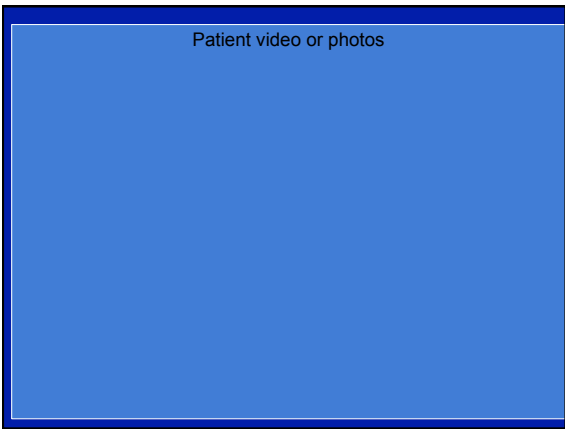


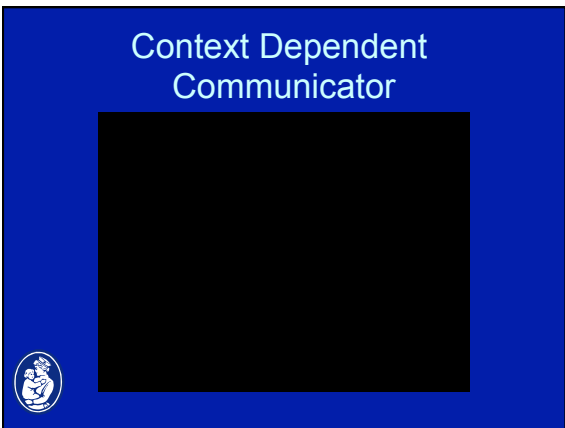
Bob make a purchase



Jess _ erica

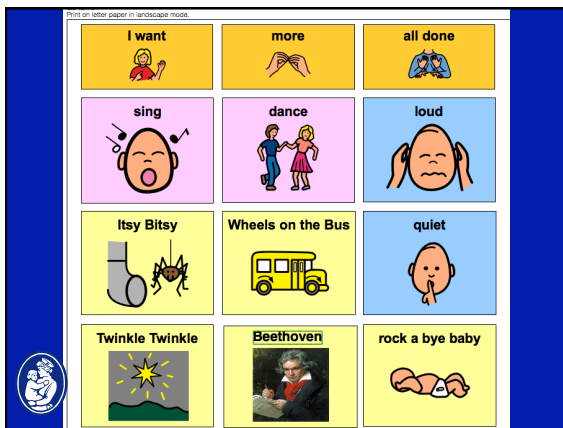


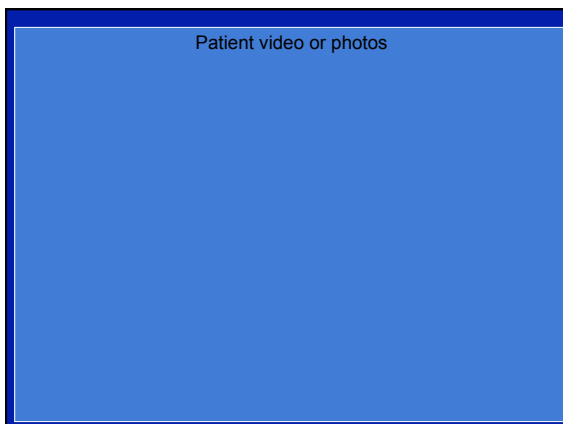


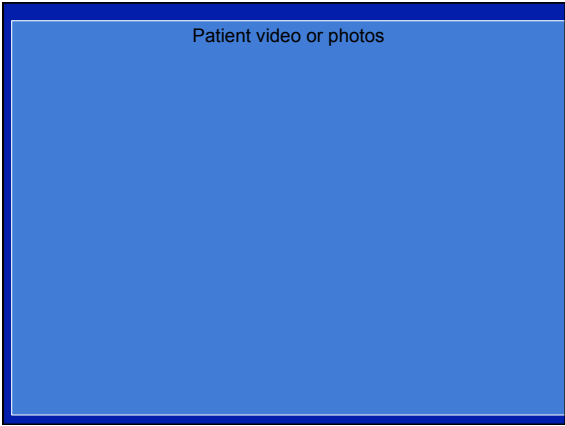


Context dependent topic boards

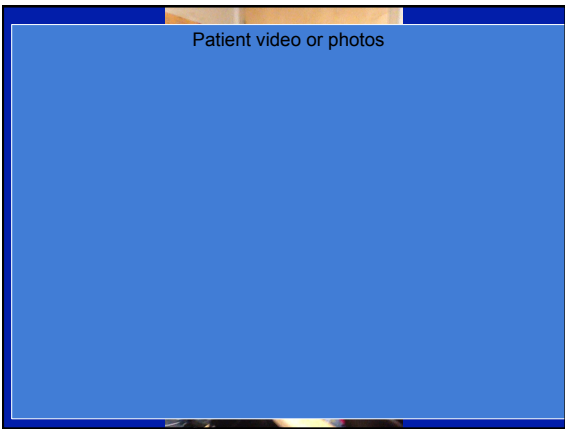




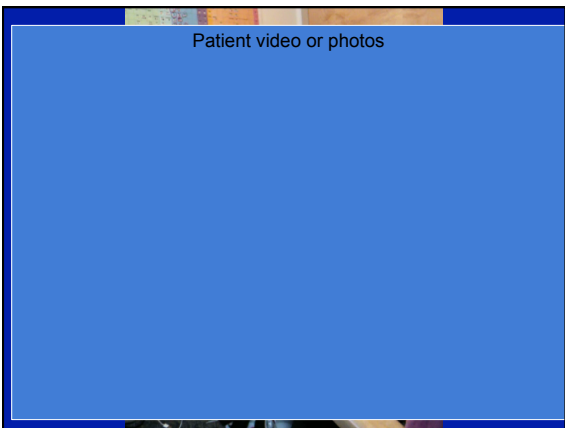




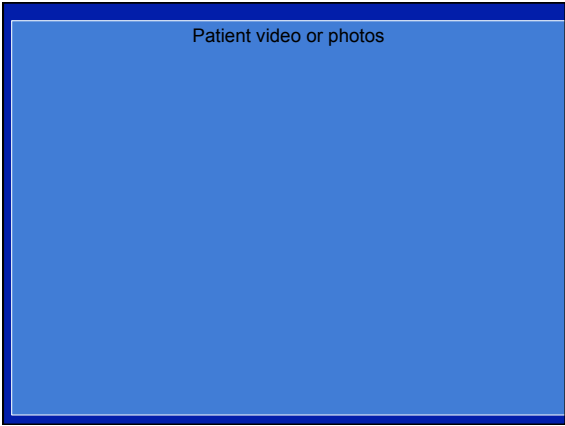
Patient video or photos

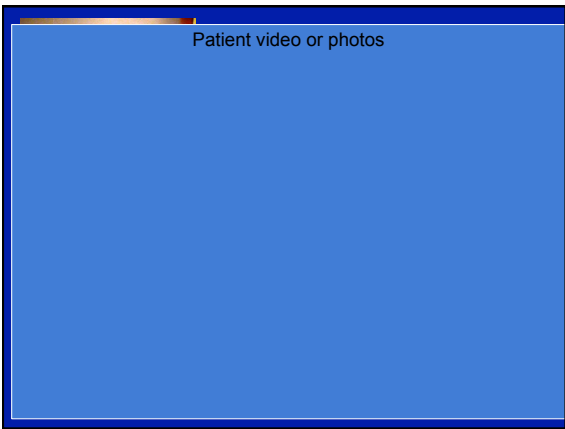


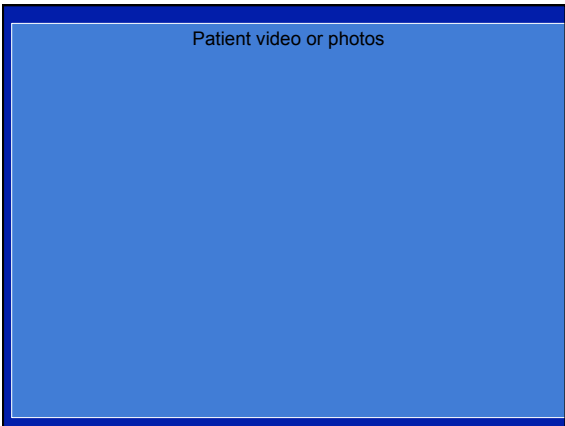
Patient video or photos



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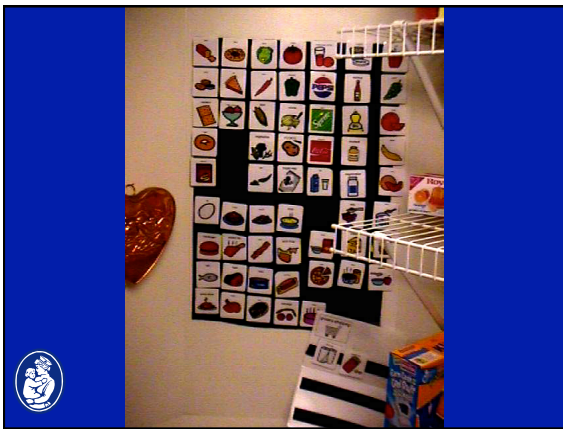




Goals for Context Dependent Communicator:

- increasing participation with familiar and new partners
- increasing the range of topics
- Increasing lexical diversity
- Integrating all available methods, symbolic and non-symbolic, into a repertoire of effective communication strategies for the individual.
- Growing operational, social, linguistic and strategic competence
- Expanding communication environments and pragmatics of use












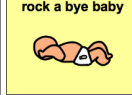




Context dependent topic boards



Print on letter paper in landscape mode

I want 	more 	all done 
sing 	dance 	loud 
Itsy Bitsy 	Wheels on the Bus 	quiet 
Twinkle Twinkle 	Beethoven 	rock a bye baby 

Independent Communicator

CASE examples:

Pediatric: 12 year old


- **DL: Cerebral Palsy**, drives power wheelchair, access technology with joystick control and, depending on position, head mouse or eye tracking. Use AAC to speak, fully participate in curriculum, do home work, internet, email, texting, telephone. Love getting on Facebook and posting photos (taken with AAC device).

Adult: 53 year old

- **DL: Amyotrophic Lateral Sclerosis**, no concerns with hearing, wears glasses for reading. Works as Information Officer for large technology firm. Married, father of three and grandfather of one. Currently uses wheelchair and do to respiratory difficulty, recently received a trach. Uses vent support inconsistently during day. Will continue to work for as long as possible but would like to transition to tele-commuting part time. Speech has rapidly changed and is now moderate to severely dysarthric. Wishes to use AAC for communication, writing, email, texting, journaling, writing his blog and all other situations of communication breakdown.





According to Blackstone and Hunt-Berg (Social Networks) Independent Communicator



- Can interact with both familiar and unfamiliar partners about any topic
- Can communicate in any context
- Typically literate
- Can communicate novel messages (vs. pre-programmed messages)
- Often demonstrate great linguistic diversity
- Often use AAC for more than speech output only, thus may also use AAC for:
 - Internet
 - Email
 - Texting
 - Telephone

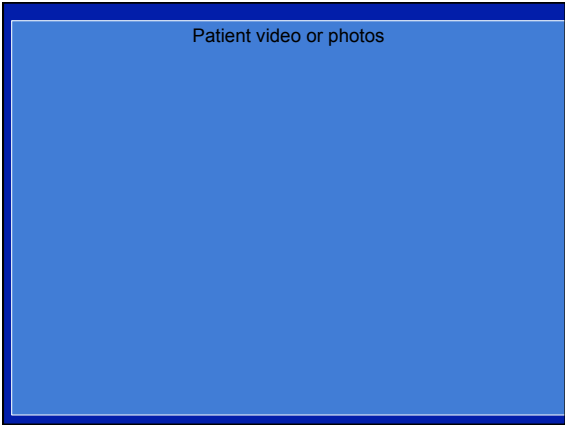
Goals should focus on:

- Improving operational competence with AAC technologies
- providing rate enhancement strategies
- expanding communication options (e.g., email, Internet access, etc.).
- Other goals may include refining social interaction skills
- increasing access to people in their fifth circle (less familiar partners according to Social Networks)
- may focus on increasing participation in
- activities related to employment and education and community



Patient video or photos


Patient video or photos





Important assessment consideration:

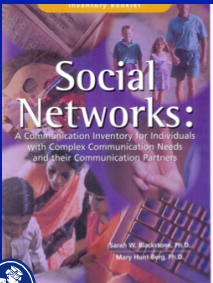
Communication Partners and different strategies used with different partners



You have already reviewed 'Social Networks'

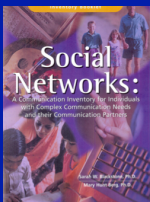


Social Network



1. Life Long Partners
2. Close Friends and relatives
3. Acquaintances
4. Paid workers
5. Unfamiliar people

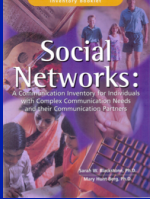




- Emerging Communication Group
- Context Dependent Communication Group
- Independent Communication Group



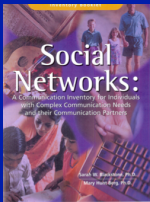
Dowden and Cook,
2002



- Emerging: not yet use symbolic communication
 - Facial expressions
 - Body language
 - Gestures and vocalizations or other non-symbolic communication



Dowden and Cook
(2002)



- Context-dependent
 - has reliable symbol communication but limited to specific context or partners
 - May only have vocabulary that supports success in limited environments.





Scientists from the RAND Corporation have created this model to illustrate how a "home computer" could look like in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 10 years from now scientific progress is expected to solve these problems. With telegraph interface and the Esperanto language, the computer will be easy to use.

Feature Matching Process:

Identify an individual's strengths and needs and match those to available or potentially available AAC features/strategies



Want a recipe for assessment?



Yes.....so do I !!!!!




- 14 month old with periventricular leukomalacia, CVI and shunted hydrocephalus
- 4 year old with severe dystonic Cerebral Palsy
- 7 year old with SMA Type 2, seizure disorder, vent dependence
- 11 year old with Down Syndrome, PDD like behavior and moderate hearing impairment
- 12 year old with Juvenile Huntington's Disease
- 23 year old with early diagnosis Bulbar ALS



Members of the AAC Team may include:

- Person who uses AAC and family
- Speech-language pathologist
- Occupational therapist
- Physical therapist
- Physicians of various specialties
- Rehabilitation engineer
- Educator
- Social worker
- Psychologist
- Vocational counselor
- Ophthalmology
- Audiology
- Orthopedists
- Manufacturer/distributor



Evidence Based Practice

↑
↓


PRACTICE BASED EVIDENCE
Meaningful and functional trial of
Device/strategies



Sample trial data points:

- Initiation
- Prompting required
- Diversity of communication partners
- Use of language functions beyond request
- Ability to navigate through page set organization with intent
- Responsibility/ownership of system

*** would have custom data points for each user of AAC



Purpose of Communication (Light, 1988)

- Communication of needs and wants
- Information transfer
- Social closeness
- Social etiquette

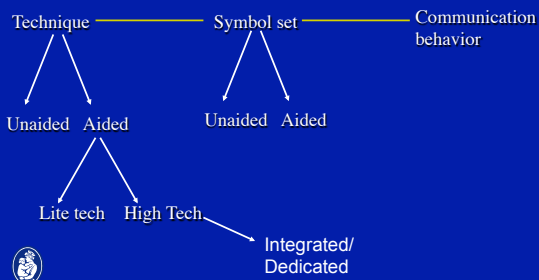


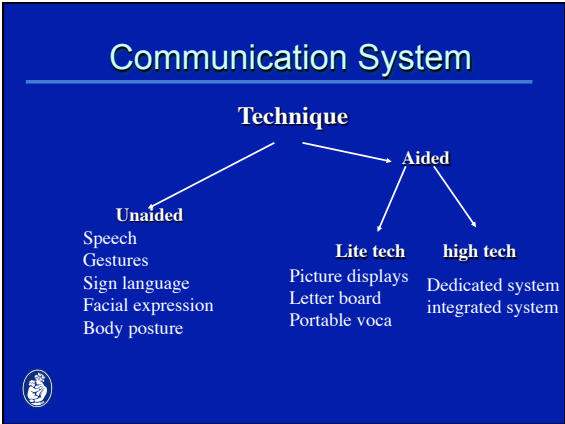
Communicative Competence

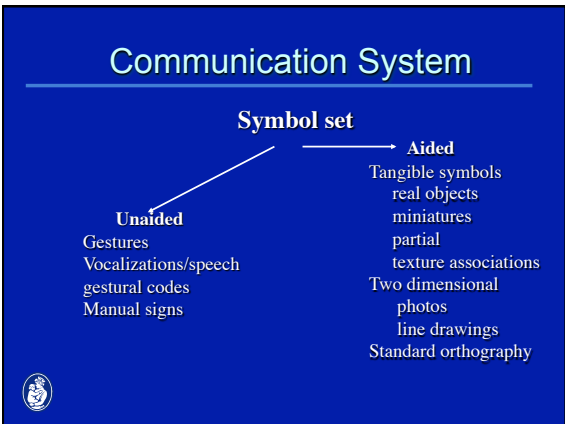
- Linguistic
- Operational
- Social
- Strategic

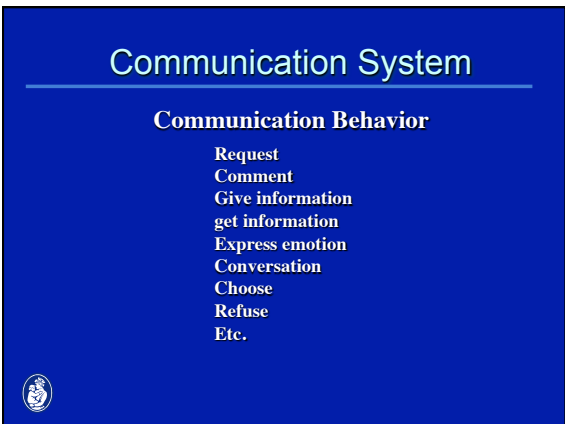
*Toward A Definition of
Communicative Competence*
Janice Light, 1989, AAC V5, #2

Communication System









Population considerations

- Time of onset
 - congenital
 - Acquired
- Length of disability
 - Temporary
 - Permanent
 - 8 hour nonspeaking condition
 - 24 hour nonspeaking condition



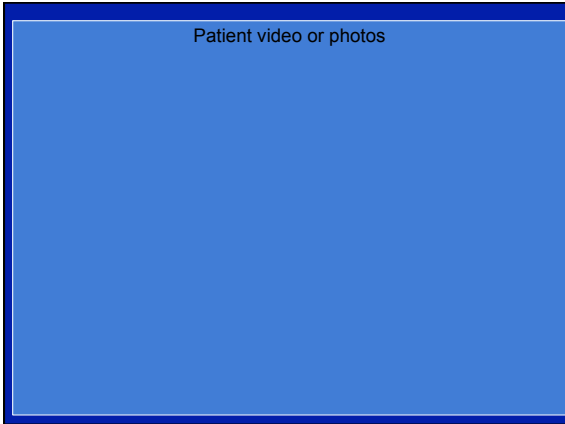
Types of Encoding

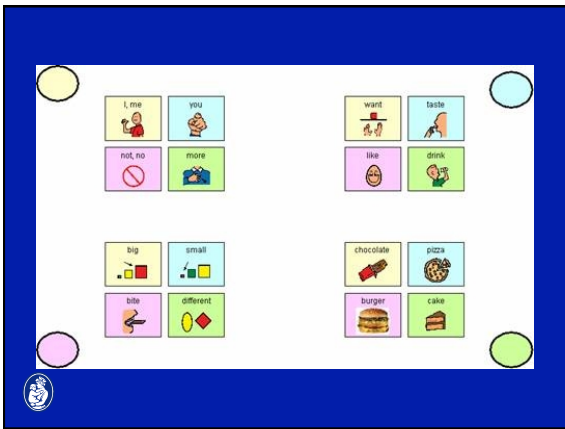
- Memory Based
 - Color coding
 - Alphabet encoding/letter encoding (traditional orthography, morse code, etc.)
 - Abbreviated expansion
 - Truncation
 - Contraction
 - Numeric encoding
 - Letter category encoding
 - Logical letter encoding/salient letter encoding

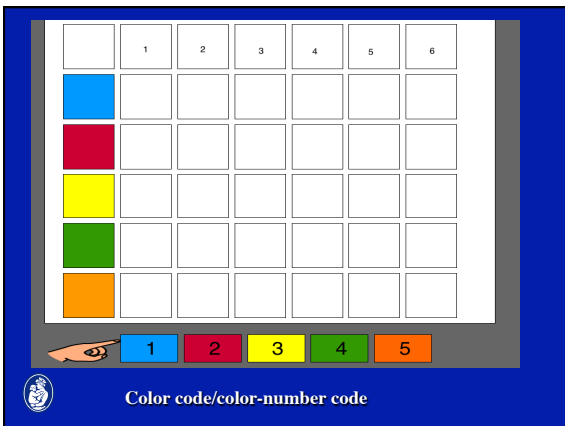


Mommy	let me	blow	more	bubbles
Daddy	no	catch	again	in
Mark/ brother	don't / not	open	little	big
Grandad	your turn	look	pop	yucky
		see		bad










- **ABBREVIATED EXPANSION**
 - **Contraction:** most salient letters (omission of vowels fr/ from, vb/verb, gf – girlfriend, hmbrg – hamburger, etc,
 - **Truncation:** first few letters only (coop for cooperation, comm. For communication, etc




Logical Letter Encoding/ Salient Letter Encoding

- A logical relationship exists between the key words of the phrase or sentence and the code selected
- V M = Voglio mangiare per favore
- C J = Mi chiamo John

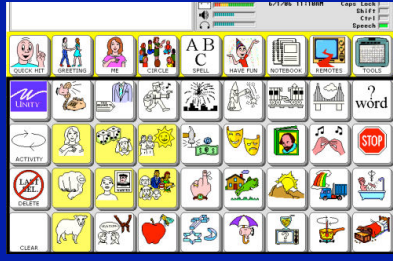


Semantic and Conceptual Encoding

- Minspeak
- Visual Motor encoding
- Graphical Metaphor

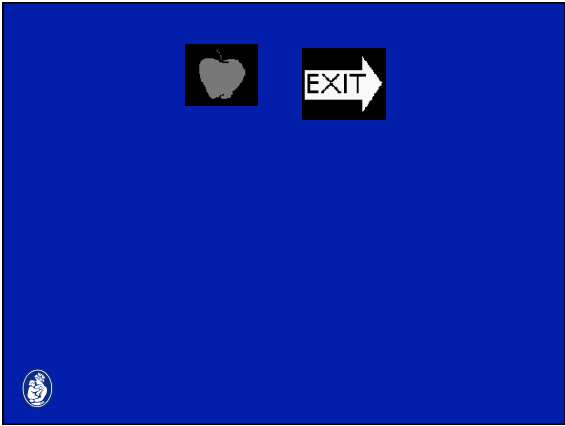


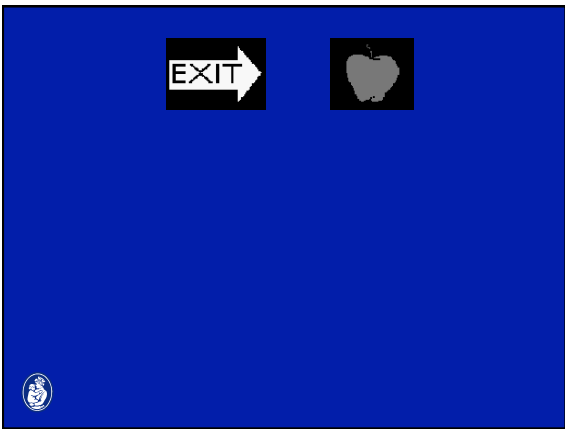
Minspeak or Unity

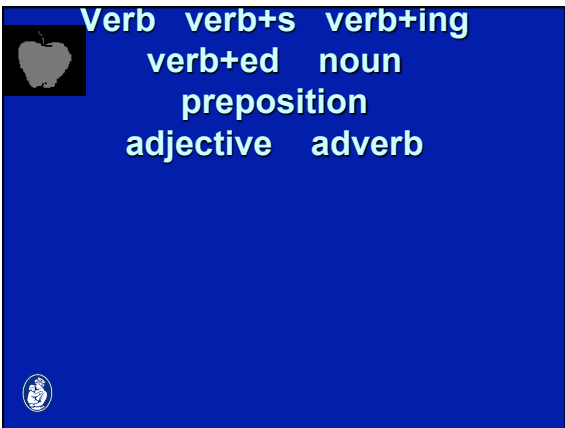


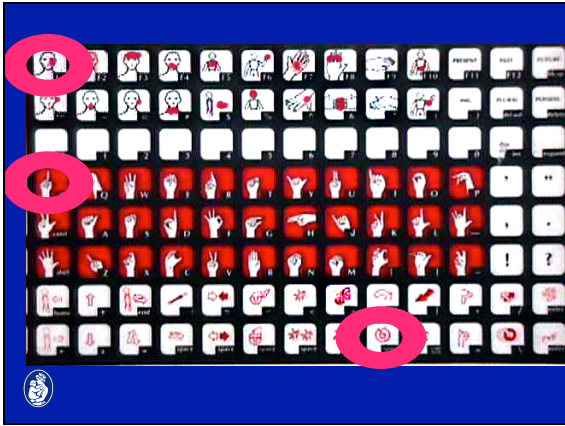












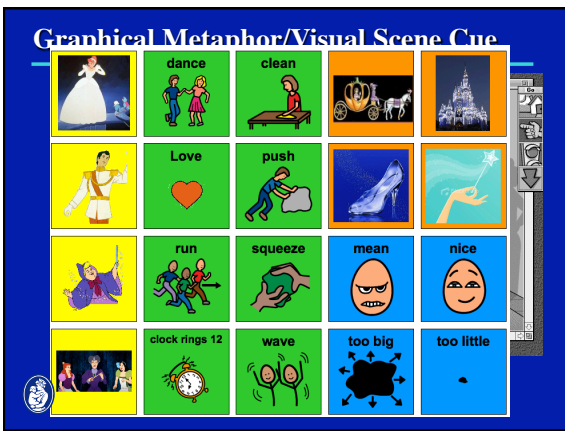
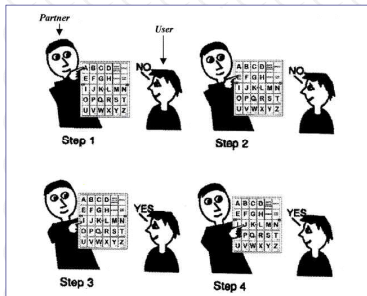




Chart based and Display Based Encoding



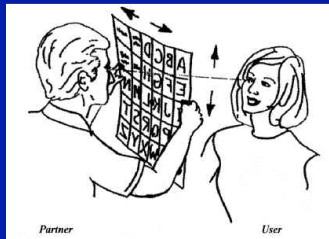
With this approach, the partner (the person who the user wants to speak with) points to each letter on a display. When he gets to the letter the user wants to communicate, the user indicates that the desired letter has been presented through a prearranged signal, e.g., head nod, smile, etc.



M.S. Kazandjian, *Communication & Swallowing Solutions in the ASZ Community: A CINI Manual*, San Diego, 1997.

Resource:<http://www.cini.org>



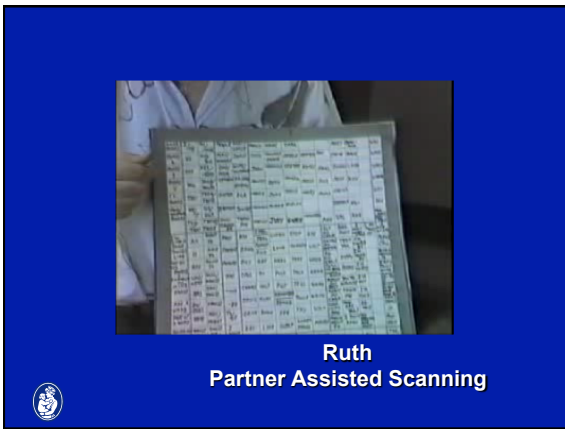


Resource:<http://www.cini.org>





Etran board



Ruth
Partner Assisted Scanning

**Word/letter/grammar/icon
prediction
Based encoding**

A small logo is in the bottom left corner.

Selection and Transmission Techniques



Transmission Techniques


- **Direct selection:** (finger, pointer, headstick, HeadMouse, eye link, etc.)
 - pressure - touch exit
 - Dwell time - touch enter
- **Scan**
 - Linear - latched - row-column - group/item
 - Assisted - auditory/partner assisted
 - single/two switch scan



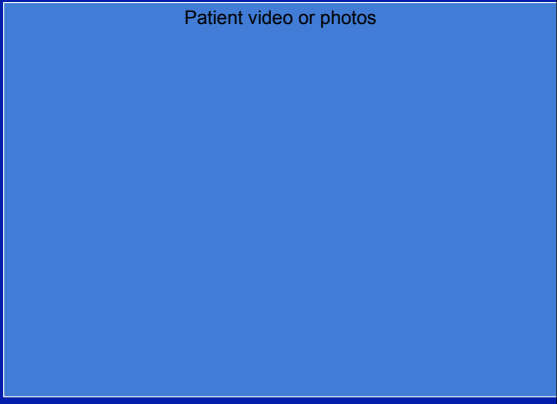
Patient video or photos

•Scan

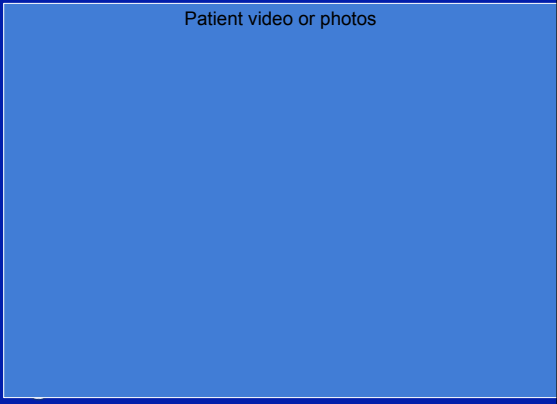
- Linear
- stepped
- latched
- row-column
- group/item
- auditory
- partner assisted
- single/two switch scan



Patient video or photos



Patient video or photos



Effective switch use:

- On
- Off
- Wait

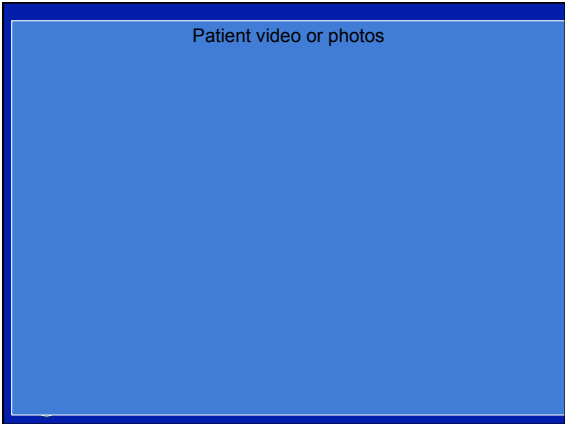


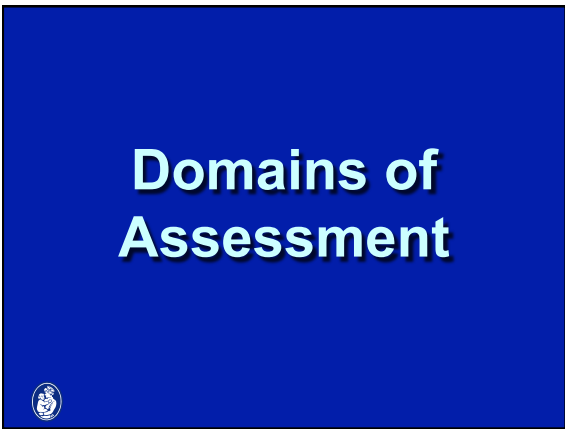
ASSESSMENT

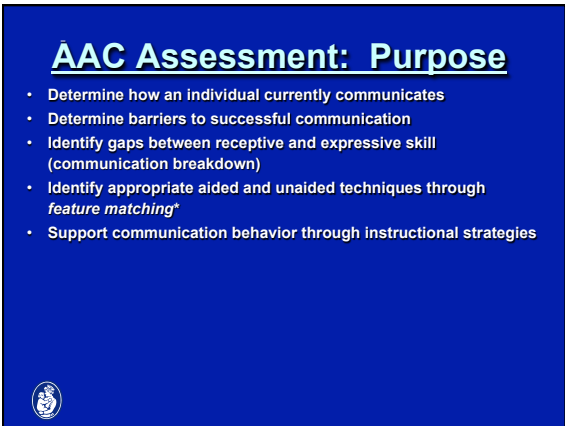


Disclaimer









Feature Matching Process:

Identify an individual's strengths and needs and match the individual's features to available or potentially available AAC features/strategies



Feature Matching Process *

A Function of:

- Domains of Assessment
- Profile of user needs
- Available hard- & software options
- Available Instructional Strategies

* Making more informed choices by identifying features that need to be addressed and then matching those features to available or potentially available AAC strategies



AAC Assessment: Process

- Domains of assessment
- Environmental considerations
- Introduction of AAC techniques
- Functional trial/intervention - Evidence Based Practice



The expected outcome of the feature matching process:

- Determination of candidacy for augmentative communication
- Identification of candidacy for aided versus unaided versus hybrid approach
- Strategies for supporting speech production and intelligibility including assisted speech aids (amplification, cues, etc.)
- Instructional strategies for aided/unaided and speech strategies
- Referral to appropriate resources



Historic Domain

- Previous communication intervention
- Previous AAC techniques
- Medical history
- Social history
- Environmental history
- Educational history
- Vocational history
- Length of time - static/progressive

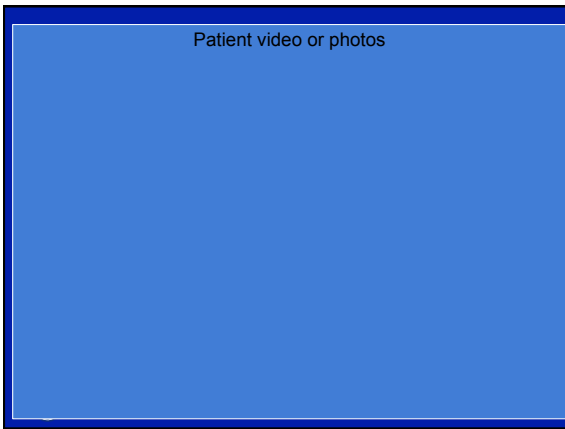


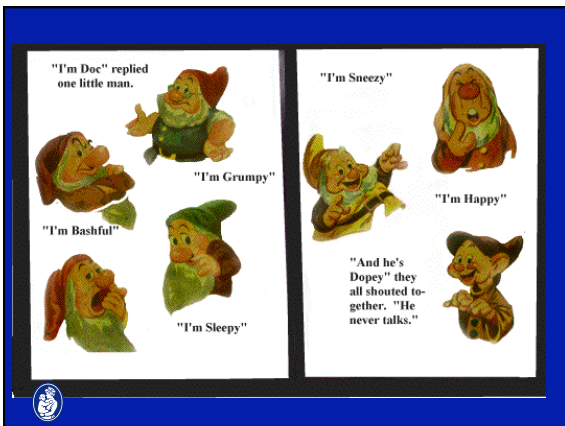
Patient Centered Domain

- What does the patient want?
- What are his/her priorities?
- What does the patient expect of you?
- What is the patient's personality?





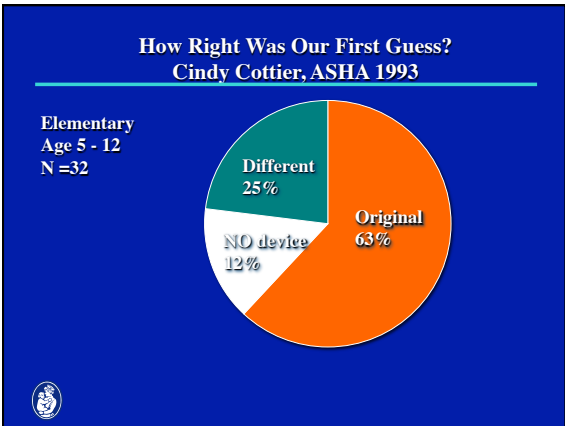


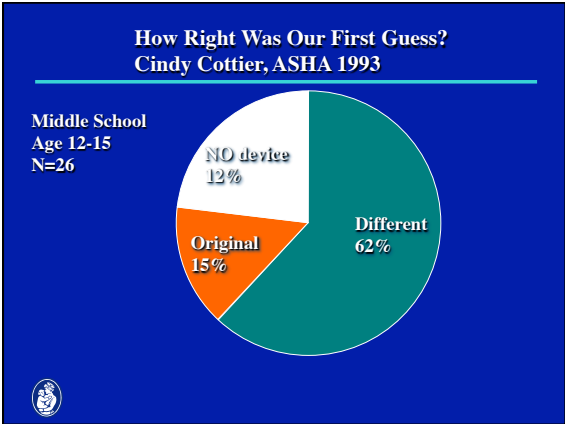


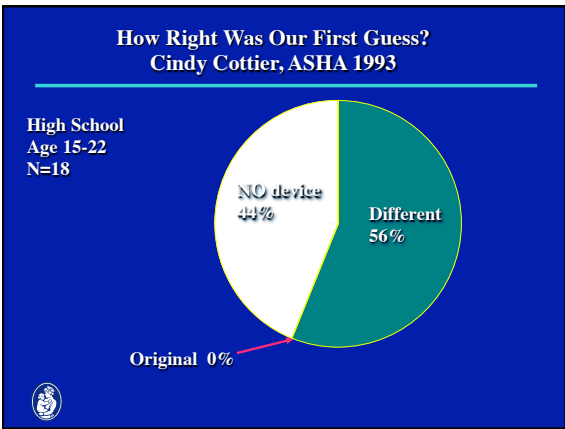
FEATURE MATCHING PATIENT CENTERED DOMAIN	
EVALUATION AREA	METHOD OF ASSESSMENT
Primary and Secondary Consumer/User goals and priorities	Interview <ul style="list-style-type: none"> ✓ short term goals ✓ long term goals ✓ priorities ✓ apriori expectations of team ✓ expectation following completion of evaluation
POTENTIAL EFFECTS ON FEATURE MATCHING Exerts Influence throughout decision making process	Observe Educate, especially when expectations do not match assessed ability

How Right Was Our First Guess?

Cindy Cottier
ASHA, 1993







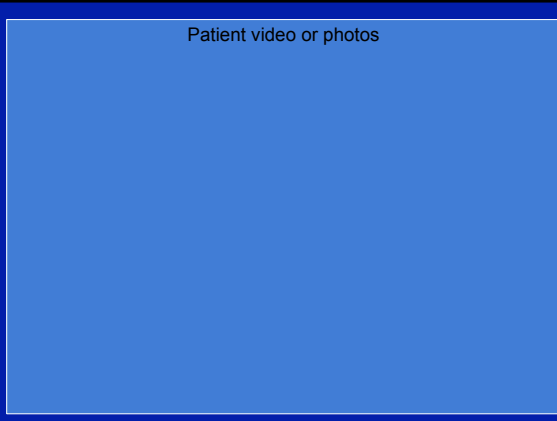
AAC and Privacy

Medical Domain

- Overall medical diagnosis
- Presence of seizures/medications
- Otolaryngology
- Orthopaedics
- Ophthalmology
- Psychiatry
- Neurology
- Nutrition
- Sleep pattern



Patient video or photos



Review of history,
records
Medical assessment

Considerations:

- Course
- static/progressive
- Impact on reflex patterns/
- positioning of technology

Otolaryngology

- Impact of saliva management
- Impact of tracheostomy selection on speech production
- Impact of vocal fold function on amplification
- Hearing management impact

www.tracheostomy.com



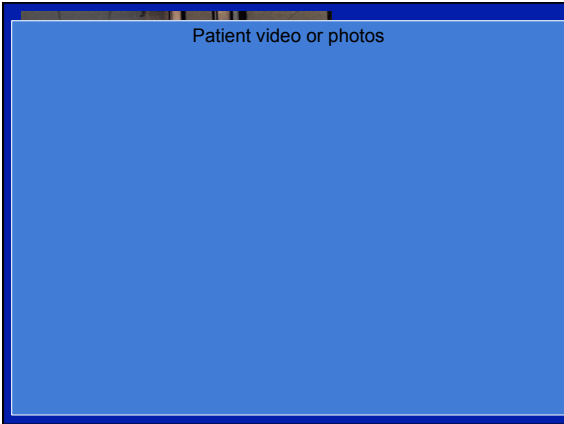
Welcome to Aaron's Tracheostomy Page. The Internet's leading tracheostomy resource since 1996.


This site is dedicated to my son Aaron who had a tracheostomy for the first 4 years of his life. I hope that Aaron's Page will be helpful to others caring for a child with a tracheostomy, or to anyone seeking to learn more about tracheostomies.

Patient video or photos


Jessica, sign language

usociety, voice output device




Orthopedics 

- **Impact of orthopedic status on functional access**
- **Impact of bracing on functional access**

Ophthalmology 


- **Impacts as described under sensory**
- **Impact of functional participation (patching, drops, etc.)**

Psychiatry




- Impact of psychiatric status on interest/willingness to communicate
- Differential diagnosis
- Counsel – voice banking (ALS)

**Neurology/
Seizure activity**



- Impact on attention/focus
- Impact on alertness
- Impact on variable performance
- Impact on switch/device placement




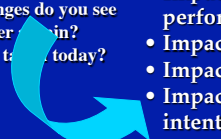
Medications

Assessed through:

- Trial
- Medical indications
- Observation

Questions to ask:


- What are they/what are they taking?
- How long have they been taking them?
- Are they therapeutic?
- What changes do you see before/after a change?
- Were they taking them today?


- Impact on attention/focus
- Impact on alertness
- Impact on variable performance
- Impact on tone
- Impact on behavior
- Impact on communicative intent




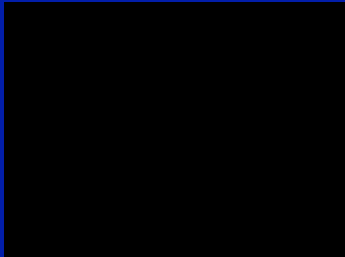
Nutrition





- Influence on awareness/fatigue level
- Introduction of G-tube may influence reassessment of skills



The feeding tube decision:
a mother's perspective



The feeding tube decision #2:
a mother's perspective



Sensory Domain

- Vision
- Hearing
- Tactician
- Olfactory

static/progressive



** tomorrow CVI

Management of Sensory Impairment in Augmentative and Alternative Communication

Lloyd, Wasson, Blichak
Purdue University
ASHA Presentation, 1994




Risk factors for vision and hearing impairment

- In-utero exposure to: Rubella, Cytomegalovirus, toxic drugs, untreated material syphilis, toxoplasmosis, Herpes, Diuretics
- Low birth weight
- Jaundice
- Meningitis
- Mental Retardation
- Exposure to toxic drugs
- Familiar disposition
- Prenatal anoxia
- Craniofacial anomalies
- Cerebral Palsy
- Head Trauma
- HIV infection
- Aging
- Genetic syndromes such as Down Syndrome Turner, Crouzons, Treacher Collins, Hurler' s, etc.)



Visual (processing)


- **Observation**
 - Influences the layout:
 - Size of symbol set
 - Number of symbols on display
 - Foreground/background
 - Font Type and size /Boldness of Print
 - Distance between symbols
 - Use of color or black and white



Visual (presence of field defect)


Observation
Progressive/static

Influence :
Placement of Materials/Symbol set
angle of materials




Functional Vision Assessment

- **Visual acuity**
 - Ability to resolve detail and recognize objects
 - Effects of glasses
- **Contrast sensitivity**
 - Ability to detect low contrast (important for picture perception and mobility)
- **Visual field (peripheral vision)**
 - Ability to detect objects to the side




Functional Vision Assessment
(continued)

- Color vision
- Visually guided fine motor skills
- Visually guided mobility
- Fixation stability
- Search behavior
- Gaze behavior
- Eye-head posture
- Eye movement problems
- Visual attention
- Binocularity
- Depth perception



Practitioners involved in Assisting Persons Having Visual Impairment


- Pediatric Ophthalmologist
- Optometrist
- Low Vision Instructor
- Vision Educator
- Orientation and Mobility Instructor



Motor Domain

- Seating
- Positioning
- Quality of Ambulation
- Controls

Strength/Fatigue



Seating and Positioning

- Breath support for vocalizations/speech production
- Stability for consistent and reliable control site/access strategies
- Range of motion
- Eye contact/socialization
- Comfort and security decreases fatigue level




Patient video or photos

Patient video or photos

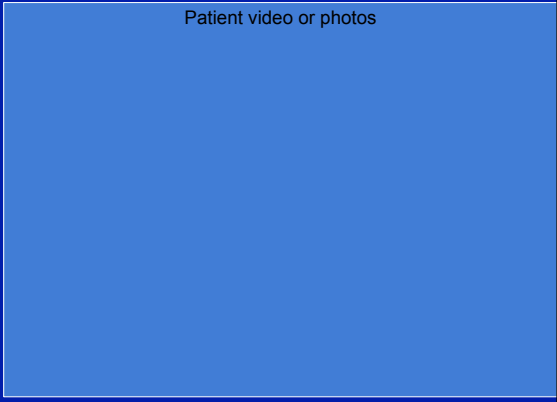
Seating and Positioning Considerations

- Optimizing seating
 - Pelvis
 - Trunk
 - Head
 - Arms
 - Feet

***This is not just for people in wheelchairs but applies to all seating arrangements




Patient video or photos

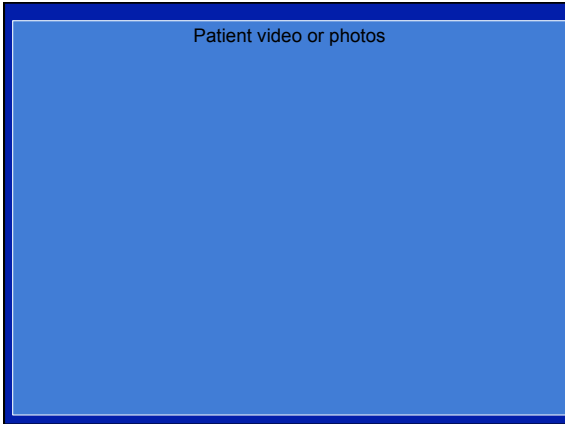


Hands

Potentially large range and fine resolution

<p><u>Advantages:</u></p> <ul style="list-style-type: none"> • In field of vision • Greater sensation in hands • Easier to mount/stabilize input or device 	<p><u>Disadvantages:</u></p> <ul style="list-style-type: none"> • Reflective posturing forward • Eye-hand inseparation • Suspended arm versus supported arm • Release difficulties • Triggers reflex patterns
---	--








Head
Potentially large range/fine resolution

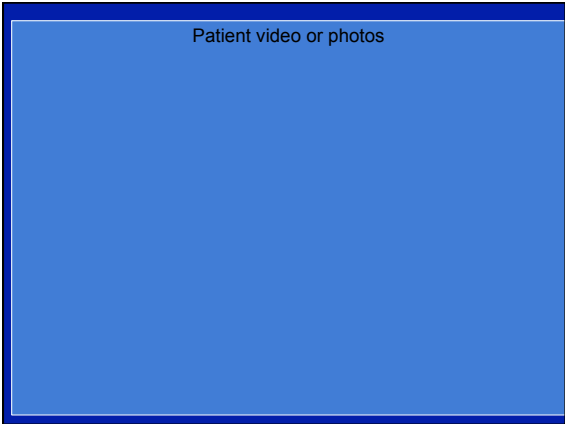
Advantages: <ul style="list-style-type: none">• Less movement required• Less visual distractions• Easy to position at least three switches• May encourage upright position	Disadvantages: <ul style="list-style-type: none">• ATNR response• Eyes may shift toward switch• May not be able to separate head and eye movement• Headrest may interfere
--	---



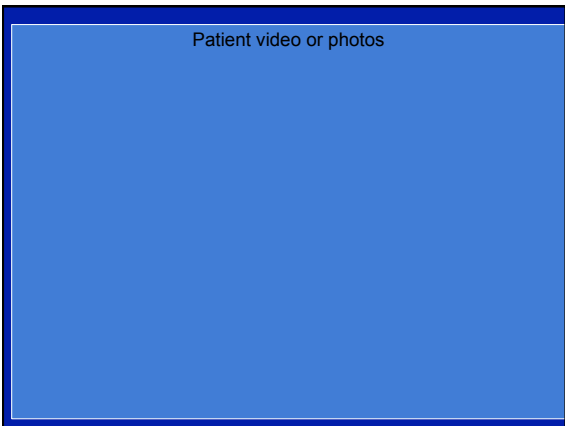
Patient video or photos

Patient video or photos

Patient video or photos



Patient video or photos



Patient video or photos


Feet
Large range and gross resolution

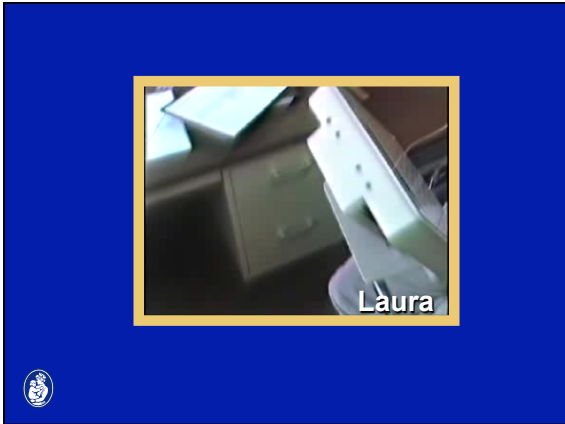
Advantages:

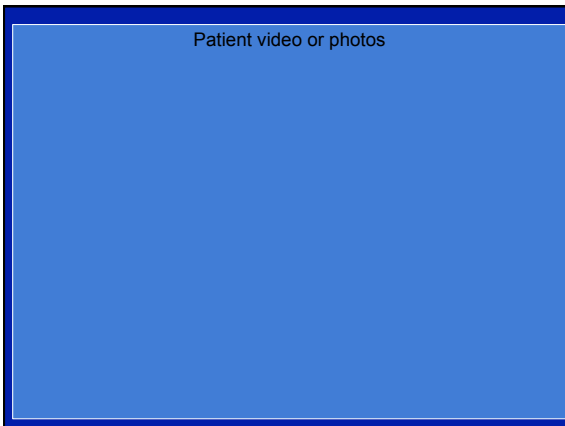
- Low profile look
- Potential for proportional control

Disadvantages:

- May be visually distracting to communication partner
- May be difficult to mount/position
- Resting place/stabilization of foot may be problematic
- Unintentional activation when excited







Arms/Elbows/Legs/Knees

Small range with gross resolution

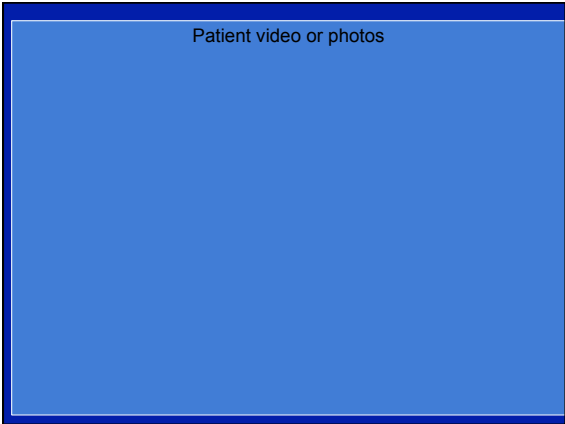
Advantages:

- Less movement required
- Less visual distraction
- Elbow increases trunk and head extension
- Easier to stabilize
- Low profile

Disadvantages:


- May be difficult to do unilaterally
- Person may rest on switch
- Unintentional activation when excited
- Reflex movement can sabotage





Speech Domain

- Production variables
- Intelligibility
- Self perception of intelligibility
- Congenital versus acquired



Motor Speech Domain

Neuromotor Speech Disorders

- Apraxia of speech
- Dysarthria
- Differential Diagnosis



Apraxia of Speech

- Sensorimotor speech disorder resulting from brain damage. Symptoms are impaired volitional production of normal articulation and prosody. These symptoms are not results form abnormal strength, tone or timing or from Aphasia, confusion, general intellectual deficit or hearing loss. Rather, they result from inhibition or impairment of the neural programming of skilled oral movements.



Dysarthria

- Impairment in the functioning of the musculature of respiration, phonation, resonance and articulation due to lesion or lesions to the peripheral nervous system, central nervous system or both.
- Lesion:
 - Lower motor neuron: flaccid
 - Upper motor neuron: spastic
 - Basal ganglia: shaking/writhing, involuntary movement known as kenesia as seen in Athetoid type CP, Parkinson's disease, Huntington's Chorea
 - Cerebellar region: Ataxia (balance, slow movement, inaccurate movement, hypotonia)



Speech Intelligibility


- Context
- Content & Complexity
- Familiarity






Definition of 8 Hour Nonspeaker

- The term *eight hour non-speaker* refers to individuals who speak but the intelligibility of their speech is influenced by the familiarity of the listener and the content (especially familiarity and technical nature) of the expressed information. Accordingly, the person considered an eight hour nonspeaker is understood by familiar listeners (most often includes persons from the home environment) and experiences communication difficulties during the 'eight hours' they are at work, school, etc.



Evaluating Intelligibility

- “Hidden Picture” Test
 - Examine Role of Context
 - Introduce Common Nouns
 - Examine Role of Gesture



Self Perception of Intelligibility

- Self report
- Tape recording
- Telephone trial with speaker phone



AAC AND SPEECH FACILITATION

Actual:

Research and Clinical Observation
Seen across diagnostic categories -
especially CP and Autism

* *expect a decrease in speech initially*

* *continues as primary parental concern*

Perceived:

Increased context provided



Patient video or photos

Language Domain

- Demonstrating linguistic competence
- Impact of language used in assessment
- Impact of speech style of examiner
- Test modification
- Co-existing conditions
- Motivation to 'prove' skill



Modification of Standardized Measures





Test Modification

- Rationale
- Caution
- Examples
 - Enlarge
 - Space
 - Additional coding strategies
 - Computerized (symbol empty versus pre-stored info)



Aided Language Stimulation




Goossens' (SEAC Proceedings October 2001) sited comprehension data suggesting the need to provide language models and aided language opportunities to cognitively young children.



- By 15 months toddler understands an average of 50 different words
- By 18 months 100 - 150 different words
- By 18 - 24 months 150 - 500 words - Chapman, 1978



**Motivation of Task/
Motivation of Vocabulary**



**Who makes the
rules anyway?**



Patient video or photos

Who makes the rules anyway? -

- Throws items to eliminate the undesired choices
- Chooses each one and leaves desired item
- Will look at/stare at desired choice
- Will make choice only when sitting down
- Is dependent on a specific cue and does not respond to similar or related (e.g., "touch what you want" versus: show me what you want, point to what you want, what do you want, etc.).



INTERPRETED DOMAIN

Observation

Interview

Analysis of antecedent-behavior-

consequence paradigm

Communication profile

Influence analysis

Establishes earliest form of expressive communication

Establish foundations for incidental learning opportunities

- Establishes foundation for teaching ability to effect the environment
- Establish high preference materials for early programming
- Establish insight into learning style
- Establish relationship between expectations and performance
- Establish priorities for system development and selection



Patient video or photos

The business of being politically correct requires constantly shifting loyalties. For example, the concept of age appropriate has an interesting history. We need to remember that this term began as an injunction upon people providing services but has gradually become a burden to be borne by the people with different abilities themselves. At first, in response to the misconception that people with learning disabilities were eternally children, people were reminded that their respectful friends regarded them as being their actual chronological age. this meant that for someone's 25th birthday - even if the person had been assessed as having a 'mental age' of 2 - one wouldn't presume to buy a plush toy. This has subsequently become a prohibition for the person, however. So an adult who likes trains or dolls is not "allowed" to have them. What began as a way of saying "Let's make sure we don't insult a group of people who have been insulted enough" has become a practice that says: "Don't do what you want or be who you are. It embarrasses us."

- Herbert Lovett
Learning to Listen, 1996



How do we know how to support and recognize a person's true personality?

COMMUNICATION PROFILE







Nonverbal Communication



Developing a communication profile




- ## Educational Domain
- History
 - Learning Style
 - Literacy
 - Learning Disability
 - Achievement Level
 - Curriculum Focus
- 

- ## EDUCATIONAL DOMAIN
- Standard measures
 - Nonstandard measures
 - Assessment procedures
 - Influence
 - Developmental levels
 - Influences symbol set selection
 - Language skills
 - Influences coding and retrieval strategies
 - Literacy skills including:
 - Influences rate enhancement strategies
 - Influences expandability of system selected
 - Influences output considerations including visual display and printer options
 - Influences need for speech feedback/readback
 - Level of representation
 - Influences need for text highlighting
 - Learning style
 - Influences consideration of a multipurpose versus dedicated device
 - Observation
 - Influences storage requirements
- 

Cognitive Domain

- Levels of representation
- Abstraction Ability
- Intellectual ability
- Memory


Nature versus Nurture



COGNITIVE DOMAIN


Standard measures
 Nonstandard measures
 Procedures

- √ Arousal
- √ Attention
- Influence:**
- Influences use of active stimulation procedures
- Influences use and type of cueing strategy
- Influences level of representation
- Influences language used for instruction
- √ Executive functions
- Influences consideration of rate enhancement strategies
- √ Problem solving
- Influences organization of system



Wh- question acquisition:

Question form	Age acquired	concept
Yes/no	2.0	
What + be	2.0	identify
What + do	2.6	action
where	2.6	location
why	3.0	Cause/effect
How (many, soon, big, etc.)	3.6 - 5.6 (size)	Manner/description
When	5.6	time
Which	5.6	selection



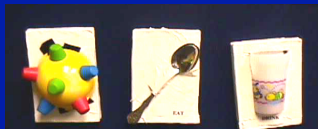
Representations (not an absolute hierarchy!)

- Objects
- Object to object
- Reduced dimensionality
- Two dimensional
- Photographs
- Line drawings
- Symbols



TANGIBLE SYMBOLS






Representations


(not an absolute hierarchy!)

- Objects
- Object to object
- Reduced dimensionality
- Two dimensional
- Photographs
- Line drawings
- Symbols
- Standard orthography (sight words)
- Standard orthography (encode/decode)
- Linguistic acceleration techniques
- Morse code
- Auditory systems
- Tactile systems





Behavioral Domain

- Frustration
- Nature of demonstration
- Learned Helplessness
- Consistent/intermittent
- Psychological relation
- Medical relation
- Antecedents



BEHAVIORAL DOMAIN

- Interview
- Observation
- Communication Profile
- Needs Assessment
- Differentiate behavior secondary to communicative dissonance versus 'not getting what person wants'
- Influence:
 - Consider behavior as communicative
 - Consider behavior as secondary to frustration with communication breakdown
 - Consider behavior secondary to medications
 - Influences durability of device/materials
 - Influences mounting of materials
 - Influences portability/protection of materials

Motivation Assessment Scale
V. Mark Durrand, Ph.D. 1986

• "...designed to identify those situations in which an individual is likely to behave in a certain way".

• 16 questions with a rating scale of:

never	almost	seldom	half the	usually	almost	always
never			time		always	
0	1	2	3	4	5	6




1. Would the behavior occur continuously, over and over, of this person was left alone for long periods of time (e.g., several hours).
2. Does the behavior occur following a request to perform a difficult task?
3. Does the behavior seem to occur in response to your talking to other persons in the room.
4. Does the behavior ever occur to get a toy, food or activity that this person has been told that he or she can't have.
5. Would the behavior occur repeatedly, in the same way, for very long periods of time if no one was around? (for example, rocking back and forth for over an hour).
6. Does the behavior occur when any request is made of this person?
7. Does the behavior occur whenever you stop attending to this person.
8. Does the behavior occur when you take away a favorite toy, food or activity?



9. Does it appear to you that this person enjoys performing the behavior (It feels, tastes, looks, smells, and/or sounds pleasing).
10. Does this person seem to do the behavior to upset or annoy you when you are trying to get him or her to do what you ask?
11. Does this person seem to do the behavior to upset or annoy you when you are not paying attention to him or her?
12. Does the behavior stop occurring shortly after you give the person the toy, food, or activity he or she has requested?
13. When the behavior is occurring, does this person seem calm and unaware of anything else going on around him or her?
14. Does the behavior stop occurring shortly after (one to five minutes) you stop working or making demands on this person?
15. Does this person seem to do the behavior to get you to spend more time with him or her?
16. Does the behavior seem to occur when this person has been told that s/he can't do something s/he wanted to do?




Motivation Assessment Scale
by V. Mark Durand, Ph.D., & Daniel B. Crimmins, Ph.D.
monacoassociates.com/mas




Motivation Assessment Scale

- Sensory 1,5,9,13
- Escape 2,6,10,14
- Attention 3,7,11,15
- Tangible 4,8,12,16



Financial Domain

- Insurance
- Responsibility of other agencies (school, vocational rehabilitation, others)
- Private Funds
- Service Organizations
- Fund Raising



Family/Support Domain

- Aid acceptance factor
- Technology Quotient (real or perceived)
- Advocacy
- Abilities and needs of communication partners



Social/Environmental Domain

- Expectations
- Social opportunities
- Consistency of partners
- Peer versus instructional models
- Learned helplessness
- Cultural considerations





Make Me WANT to be Assessed: *Select Strategies* in AAC Assessment

From the Augmentative
Communication Program Clinical Staff
Children's Hospital Boston
<http://www.childrenshospital.org/acp>



Assessment Dilemma

- Many children are not interested/motivated to show their true competence in context of assessment
- Children with complex communication needs are often repeatedly 'tested'
- Children with complex communication needs often have limited opportunity to use or experiment with language
- Can't develop skill without experience BUT often experience is not made available until child demonstrates skill



Alycia Berg, MS, CCC-SLP

AAC Assessment with Infants and Toddlers



Common Challenges or Misconceptions

- Before participating in low-tech or high-tech AAC Assessment, an infant/young toddler must be able to follow directions
- It is necessary for the child to understand specific concepts/ vocabulary that can be used for communication
- Voice output is not appropriate for infants and young toddlers.



6 month old

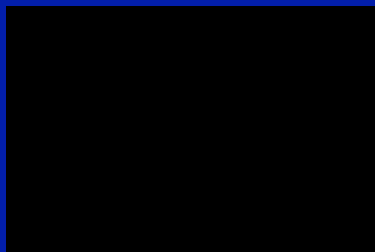
Clinical Assessment goal:

- Switch use and access
- timed switch access (on - off - wait)
- turn-taking, social connectedness, anticipation

Clinical tool:

- Step-by-Step recorded with a single message "Peek-a-boo"
- Introduction to low tech eye gaze for symbols





High Tech “Infants” (VIDEO 13-14 months old)

Clinical Assessment goal: Use of an Eye Tracking System

Clinical Tool: (Tobii P10 and Ceye with custom SDPro)

Step 1: Calibration and interaction with the device

Step 2: Navigation of Dynamic page sets to intentionally engage.

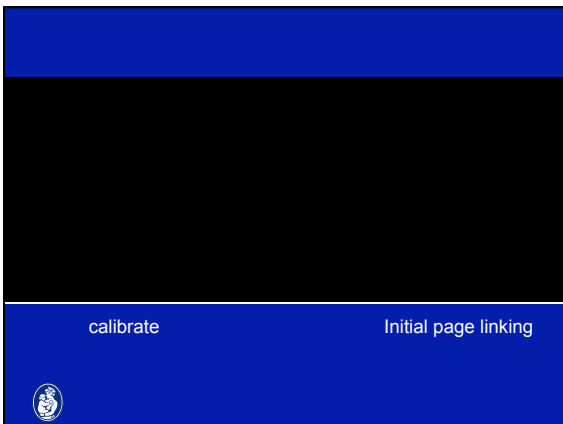
*Displays with page links. 4 main targets + go back



Talking Points:

- How to get a 13 month old to calibrate:
- Calibration task- look, hold gaze, and track multiple
 - Not too young...need to be clinically creative and imaginative with set up (he doesn't need to understand the task to complete it!)



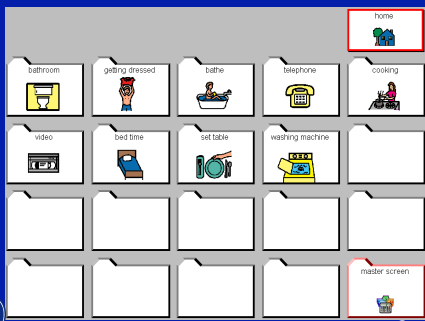


Jessica Gosnell, M.S. CCC-SLP

Impacts of Motivating Vocabulary on Assessments

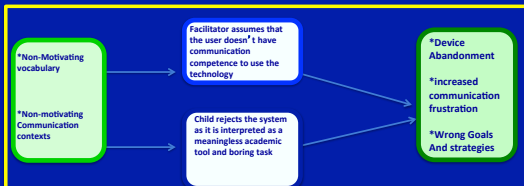


WHERE'S THE MOTIVATION?



© J. Gosnell

Impacts of Vocabulary



© J. Gosnell

Impact of Vocabulary within the Assessment

- ❖ *Non-Motivating Vocabulary*
 - ❖ Not all kids like Barney, Bubbles, and Blocks
 - ❖ Often using pre-stored off the shelf vocabulary that isn't customized to the child
 - ❖ Often don't know what the child likes until they arrive...then do you have access to that?



© J. Gosnell

Impact of Vocabulary within the Assessment

- ❖ *Non-Motivating Communication Context*
 - ❖ In an UNFAMILIAR environment
 - ❖ With UNFAMILIAR people
 - ❖ Often doing UNFAMILIAR THINGS



© J. Gosnell

Impacts of Vocabulary

When the child is not motivated by the vocabulary and vocabulary is not customized to meet the needs of the individual:

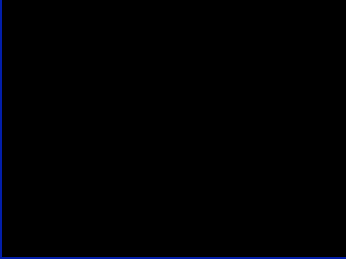
- Accused of "not being ready for a communication system"
- "Not willing to use the system"

Therefore...
the idea of their using an AAC system is abandoned.




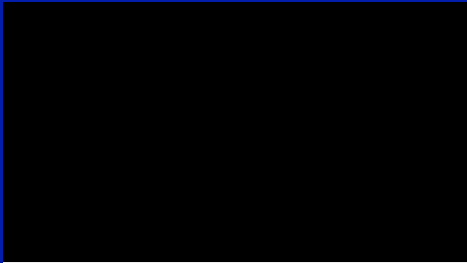
<http://atto.buffalo.edu/registered/ATBasics/Populations/aac/printmodule.php>

© J. Gosnell




Ryan, Introduction to voice output






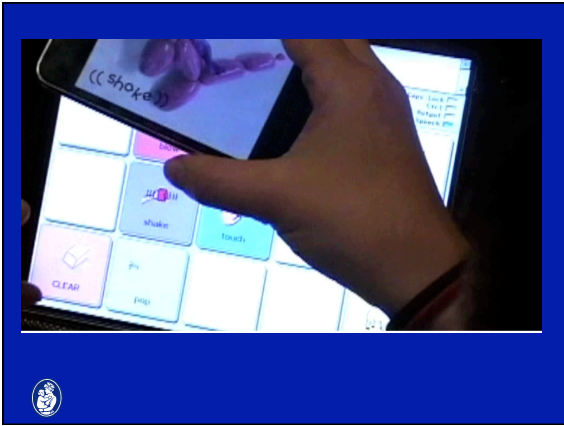
Erica,
•Diagnosis->Autism
•Motivated to communicate highly preferred request
•Currently communicates by Physical Communication
&Word approximations for highly preferred request
•Currently comprehending mostly nouns



Considerations for getting 'buy-in' to assessment

- Personally relevant vocabulary in all assessment tasks
- Taking advantage of technology, websites and applications that are often familiar, motivating and already part of child's environment





John M. Costello, M.A., CCC-SLP

AAC and Errorless Co-Construction
of Language:
Making Language Real

My motivation:

- IEP goals and assessment goals we see in clinic:

Johnny will communicate a choice from a field of three symbols with 80% accuracy

Johnny will identify the appropriate symbol from a field of three symbols given verbal prompts

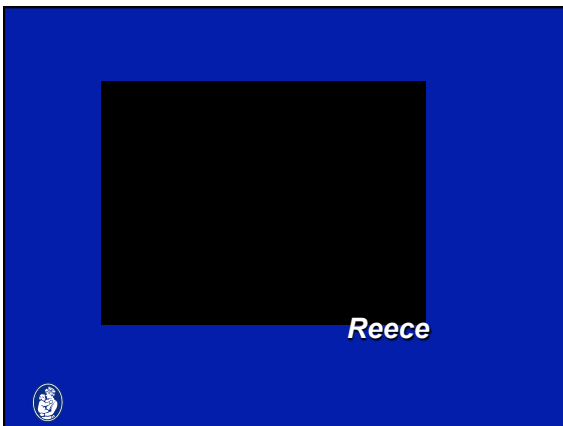
Johnny will match a symbol to a like referent with 80% accuracy

How about...

- Johnny will experience the power of language and the meaning of a symbol through creative and supported exploration of language (not available to many children with complex communication needs).
- *Then* engage Johnny in assessment

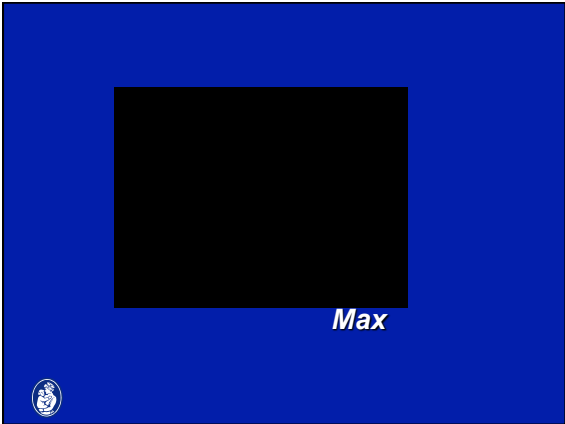







Reece





This task may support focus on:

- Inventively manipulating language
- Experimenting with change in meaning based on change in word order
- Focus on left to right orientation
- Using language for imaginary purposes
- Create a novel utterance that is static and may be used to re-tell a story
- Begin creation of a self-authored story book
- Make abstract language more meaningful by drawing and acting out



Innovative use of computer to focus on speech sound production, imitation of speech, tactile cues and sign



Many children are resistant to tasks they know are Hard OR for which they have been drilled



Sharon Shaham, MS, CCC-SLP

Innovative Uses of Technology to Engage Children in the Assessment Process



Philosophy:

Instead of rewarding a child for participating in assessment, the assessment process should be rewarding



Case 1

School assessment suggested child not ready for static displays


Goals focused on communicating a choice from a field of two



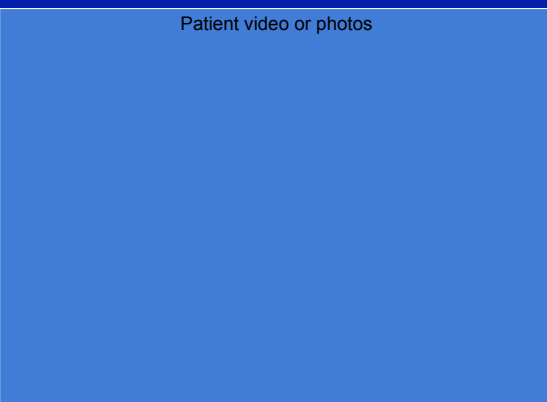
Innovative use of PPT to create a motivating 'dynamic display'

- Outcome:
 - ✧ initially used single icon
 - ✧ would combine two words
 - ✧ navigated dynamic display when 'sabotaged' access to motivating vocabulary
 - ✧ Produced verbal speech approximations of motivating vocabulary
 - ✧ PPT allowed for home based experience and evidence based trial without additional technology purchase

www.childrenshospital.org/acp




Patient video or photos



Case 2

- Assessment:
 - ✧ use of keyboard of small hand-held device
 - ✧ Ability to spell target words
 - ✧ Verbal production of target words/sounds

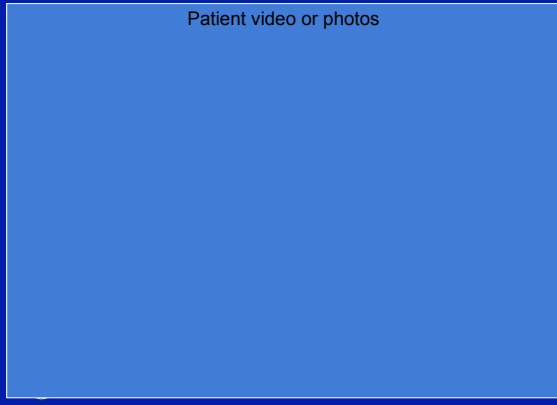


Outcome

- ✧ Enjoyed being engaged in a 'project' (that happened to incorporate the assessment goals)
- ✧ Innovative use of Power Point, recording features and animated symbols supported engagement for:
 - ✧ Spelling target words
 - ✧ Speech production
 - ✧ Willingness to verbally repeat
 - ✧ Use of keyboard on small handheld



Patient video or photos



Case 3

- Assessment goals:
 - ✧ follow two-step directions
 - ✧ Demonstrate understanding of first/then
 - ✧ create complex sentence using high-tech system.

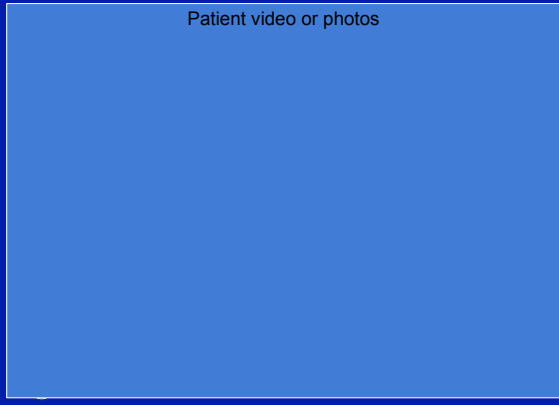


Outcome:

- ❖ Child resistant to tasks
- ❖ child very motivated by a computer character
- ❖ task created to incorporate the character and vocabulary for participation using a high-tech system



Patient video or photos



JENNIFER.ABRAMSON, MS, SLP-CFY

The Use of Technology to Promote Active Participation in Assessments



Rationale

Research and clinical observations have demonstrated that many individuals with ASD benefit from use of visual supports

Children with **Perceptive Developmental Disorder - Not Otherwise Specified (PDD-NOS)** have been found to interpret visually based information superiorly to information presented auditorily.

(Althaus, de Sonneville, Minderaa, Hensen & Til, 1996; Mottron, Burack, Stauder & Robaey, 1999; Shah & Frith, 1993; Thaut, 1987)

Children with ASD have been found to have an inherent interest in multimedia (Shane & Albert, 2008)

By providing individuals with ASD with assessment materials as presented within visual, computer-based displays, comprehension of task expectations is likely improved, and individuals are most likely to participate, as the assessment itself has been presented within a more motivating medium.



Prepositional knowledge

Example: Colin

- 6 years old
- highly motivated by *Champ*, an engaging and animated character used within *Puddingstone Place*, a software program introduced to Colin within therapy sessions at this center
- Prepositions have been included on his IEP for several years
- His mother reports minimal success teaching prepositions



Prepositional knowledge

Example: Colin

Colin was presented with a *Teaching Language Concepts*, an engaging application that teaches comprehension and use of abstract language concepts (e.g., verbs, prepositions) through the use of animated graphics and dynamic videos

Within *TLC*, lessons can be easily customized. In the case of C, he was presented with lessons containing highly-motivating images (i.e., of himself and Champ), in various locations in relation to a tree or table in photographs

Video: Using the embedded color-coded visual symbols arranged in a left to right orientation as presented on-screen, Colin combined the elements to create generative sentences demonstrating knowledge of targeted prepositions including: *in, in front of, next to and behind*



Patient video or photos

Patient video or photos
