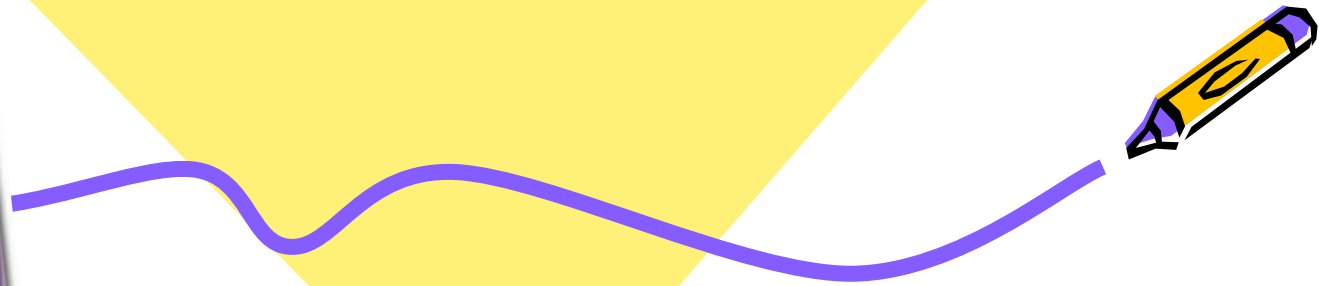




# AAC: From Start to Finish



Prepared by Bonnie Richardson M.S. CCC-SLP

# What is AAC?

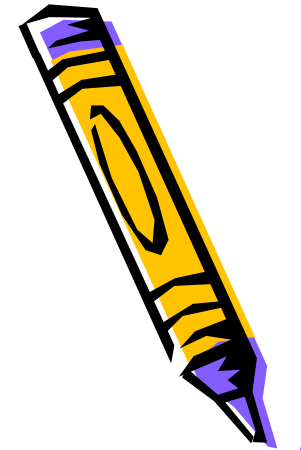
- Any device, system or method that improves the ability of a child with a speech impairment to communicate effectively
- High Tech devices are used to generate audible spoken words or phrases from a user's input. This input may include symbols, letters or text depending on the person's cognitive abilities.

Definition from [www.dynavoxtech.com](http://www.dynavoxtech.com)



I need to use the restroom	I am cold	I am hot	I am hungry	I am thirsty	I want to go outside. Please wait my turn.
I have an itch	I hurt	I feel sick	I am tired	Please call the doctor	I want to go to the store.
Please wash my hands	I want to watch TV	I want to listen to music	I want to watch a movie	I want to read the newspaper	I want to go to school.
Leg	Arm	Face	Head	Hand	Foot

- AAC stands for Augmentative and Alternative Communication
- AAC and SGD (Speech Generating Devices) can be used interchangeable in documents and conversations related to funding
- VOCAs (Voice Output Communication Aids) is a historic phrase that is rarely used today



- Types of AAC
  - Picture boards
  - Eye gaze systems
  - Alphabet boards
  - Sign language
  - Partner assisted scanning
  - Reading facial cues and body language
  - Technology based devices



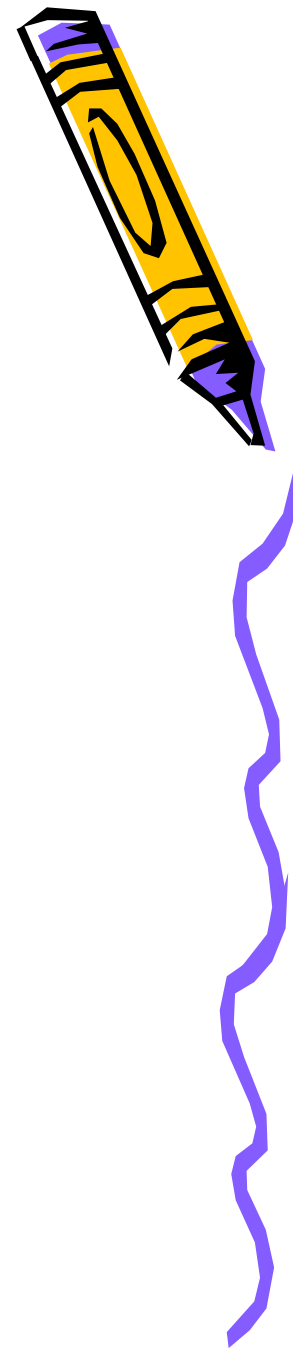
# What is the purpose of an AAC device?

- To provide a functional method of communicating wants and needs with others in the everyday environment
- To indicate medical necessities and safety issues
- To provide a functional method of communicating to access the general curriculum in the school setting
- To open up greater social interaction opportunities for the individual in both the school setting and in the community
- To allow for community and employment opportunities.



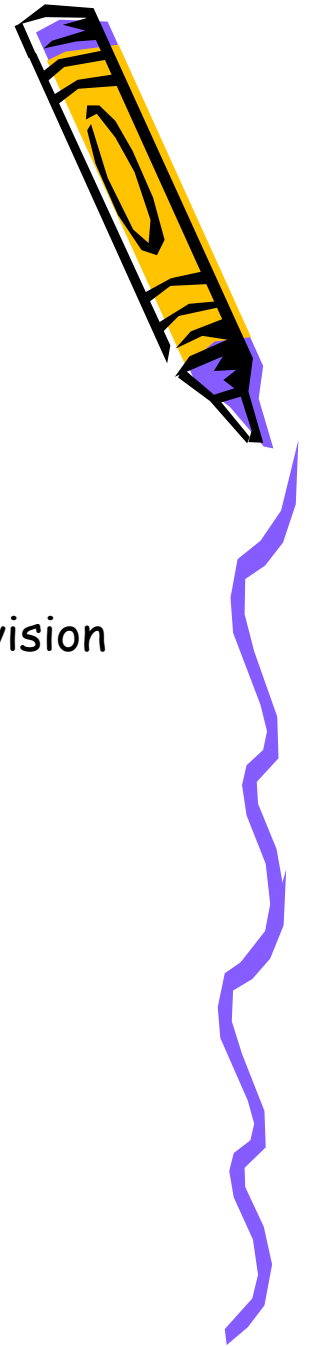
# Who is involved in conducting the AAC evaluation?

- SLP can conduct evaluation individually or a member of collaborative team
- Collaborative Team may include any or all of the following:
  - Individual being assessed
  - Family/Care Givers
  - OT
  - PT
  - Psychologist
  - Technology Specialist



# Questions to consider when thinking of a communication device

- What is the individual's and family's past experience and comfort with technology?
- What is the individual's current language needs, goals, and preferences?
- How will the individual access a communication device?
- What are the individual's fine and gross motor abilities?
- What is the individual's cognitive functioning?
- What is the individual's vision and visual perceptual abilities?
- What is the individual's current hearing ability?



- What will the individual's needs be five years from now?
- What functional living skills if any, will the individual be required to participate in.
- What is the funding source(s) available to the individual?

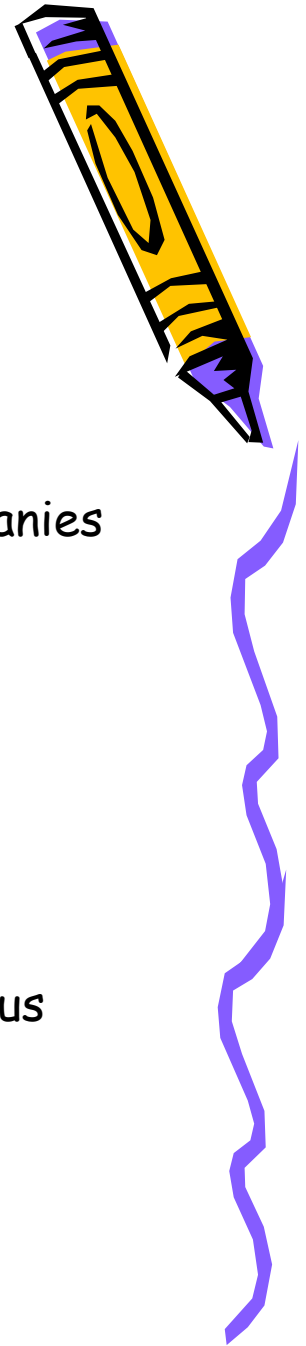


- Will a communication device change the individual's ability to functionally communicate?



# Trialing a Device

- Trial several different communication devices that the team thinks will meet the needs of the individual.
- Look at the various devices available through different companies
  - Prentke Romich Company
  - Dynavox Technologies
  - Words +
- Team can trial devices independently
- Many companies have representatives who demonstrate various devices based on factors team has identified as appropriate.



# Recommended AAC Evaluation Documentation as outlined by the NH Medicaid Office (June 2002)



- Identifying Information

(Individual's name, date of birth, school currently attending, evaluators involved, date of report)

- Statement of need, the purpose of the evaluation

Girl needs an Augmentative Alternative Communication device that will provide her a functional method of communicating her wants and needs with others in her everyday environment as well as indicate medical necessities and safety issues. It will also provide girl a consistent functional mode of communication to access the general curriculum in a public school setting. Currently, she is limited to a few consonant and vowel approximations and hand gestures.

- Medical Diagnosis

According to information obtained from the XXXX Clinic during XXXX, a team from this institution diagnosed Girl with Triple-X Syndrome. For Girl, this diagnosis appears to have manifested as an expressive language delay, motor dyspraxia and speech dyspraxia.

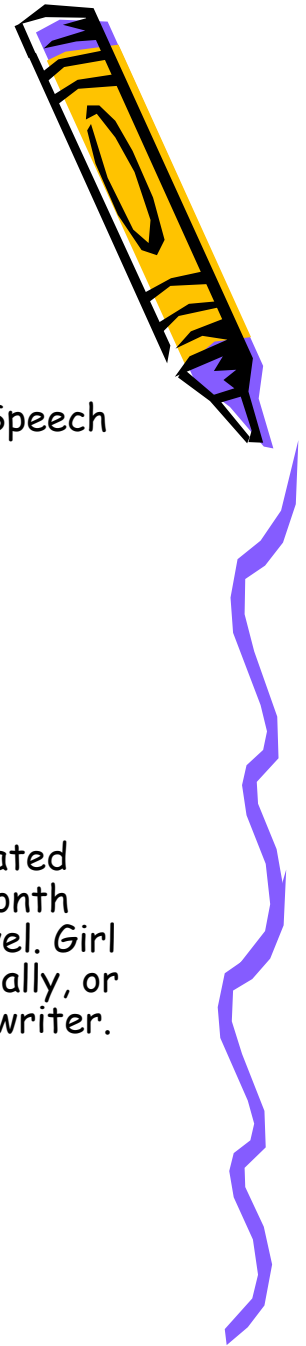


- Communication Diagnosis

Girl was identified at approximately four years, one month old with Developmental Delay by her family physician and a second referral by XXXX, Speech Language Pathologist at XXXX Elementary School.

- The prognosis for return or development of speech and or writing

is poor based on information gathered from evaluation team summary dated XXXX. At that time, Girl's nonverbal cognitive skills were around the 19-25 month age range. Her language skills were lower than this closer to a 14-16 month level. Girl was born with a genetic syndrome that does not allow her to communicate verbally, or fine motor skills to allow her to manipulate paper and pencil to be a functional writer.



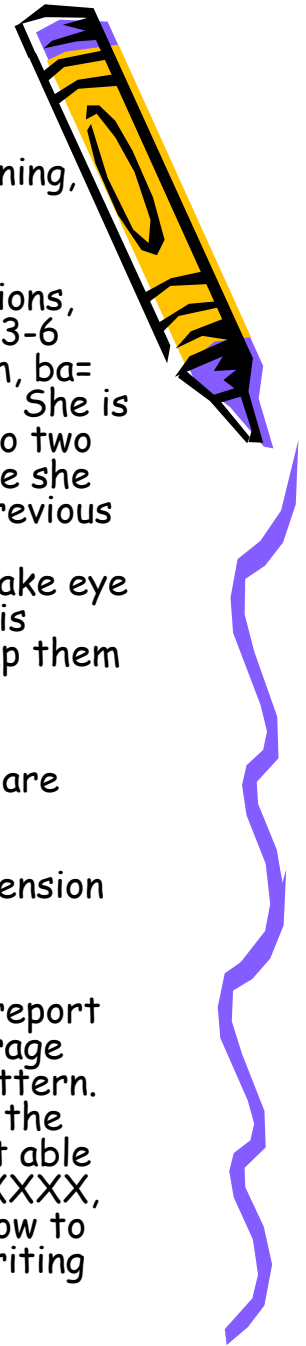
- **Communication Skills**

a. summary of present communication skills for speaking, reading, writing, listening, social interaction, speech intelligibility and/or oral motor skills.

Girl communicates primarily through unintelligible phrases and vocalizations, gesture/pointing and a low-tech communication device. She is able to produce 3-6 verbal approximations containing consonant and vowel formations (i.e. ma = mom, ba= her grandmother's name Barbara, ya = yes). She is also able to verbally say no. She is able to shake her head for no, and nod her head for yes. She is able to point to two or three different items in succession in her immediate environment to indicate she wants something. She is also able to point to a general location to indicate a previous activity or event she wants to discuss. Girl is able to use her voice and wave appropriately when indicating hello and goodbye. She will also independently make eye contact and look in the direction of her communication partner with whom she is addressing or wants to address. To gain another person's attention, she will tap them lightly on a shoulder, arm, etc. and make an audible noise.

She is not able to read aloud as she is nonverbal. When her classmates are reading, she will independently initiate verbally, producing various patterns of intonation. Following an adult read, basic passage, Girl will correctly point to different pictures of people and items in an effort to answer reading comprehension questions.

The following information was gathered from an Occupational Therapy report completed in XXX. Girl presents with muscle tone and strength in the low average range in her upper extremity. She holds a pencil using a static tripod grasp pattern. She requires reminders to hold the pencil close to the tip, rather than high on the shaft. At this evaluation, Girl was able to write a capital letter "F", but was not able to make any of the other twenty-six letters of the alphabet. As of XXXX, she was no longer able to write the letter "F". She is still learning how to replicate lines and other pre-writing skills. It does not appear her writing will be an affective method of communication.



- She is not able to read aloud as she is nonverbal. When her classmates are reading, she will independently initiate
- Information was obtained from XXXX Clinic. In XXXX, Girl underwent an Auditory Brain Response (ABS) hearing evaluation, which revealed Girl demonstrated normal acuity "across the mid- to upper-speech frequencies for each ear".
- Girl is able to drink and eat a normal diet prepared with normal consistencies. She often has overflow of saliva out of the corners of her mouth. Girl often requires verbal reminders to wipe the saliva off, but she is capable of wiping it off herself. She sometimes will use her fingers to try to make her tongue and mouth move for motor imitation skills. She is able to protrude her tongue and move it to the left corner of her mouth, but not to the right. She is able to lift it up toward her nose, but not down towards her chin.

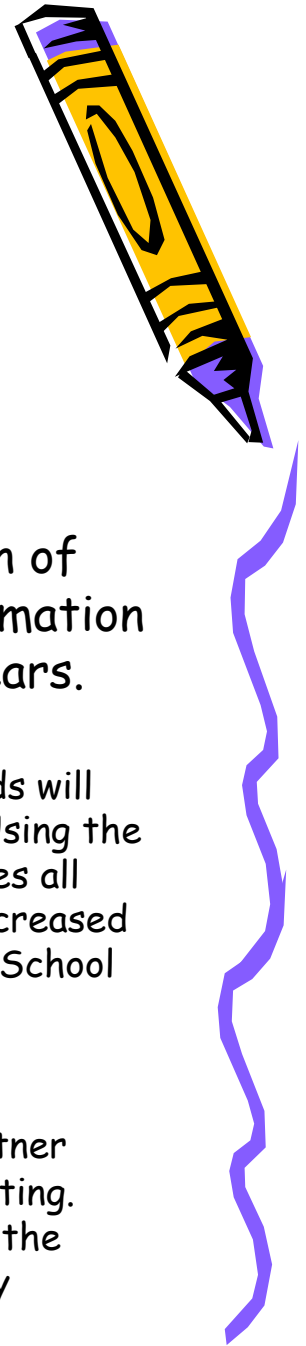


- b. History of prior use of AAC Systems
- c. Summary of observations of communication in primary environment
- Medical History as it relates to AAC
- Information on the living/vocational situation. Identification of the communication needs in the various environments. Information of any planned changes in the environment in the next 1-3 years.

Girl is going to be starting third grade in XXXX. The academic demands will increase and her expressive language demands will need to increase as well. Using the Go Talk 20 is not an appropriate means for this to happen as she currently uses all twenty of the cells in each of the five levels not allowing expansion for the increased language demands. In the fall of 2007, she will be moving to XXX Elementary School for fourth and fifth grades.

- Socio-emotional status as it relates to AAC use

Girl often becomes frustrated when her communication partner does not understand the intent of her vocalization, and pointing. She often hits her head, her leg, and eventually terminates the conversation, thus settling for what ever she get or possibly throwing items.



- Pertinent Motor Considerations

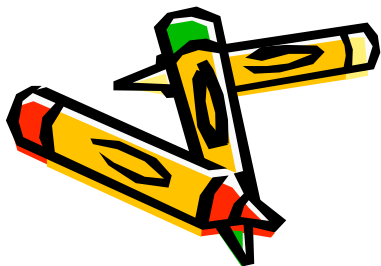
A. Ambulation, seating, positioning as it relates to the person's ability to effectively use communication systems in projected environments

B. Motor Access capabilities relative to use of AAC systems.

C. Switch Assessment if appropriate.

- force requirement
- location of switch
- positioning of person
- activation/release issues
- success achieved during trial
- color
- contrast
- texture
- control site

Girl is able to independently ambulate around her environment. She is able to sit at a 90, 90, 90 posture and activate a communication device at a table as well as standing in a hallway conversing with a communication partner. She is able to use direct selection to activate cells on her go talk. Her fine motor abilities are limited, but she can directly select an area two inches by two inches. She does not currently demonstrate the motor ability to use sign language.



- Cognitive Status as it relates to communication in projected environments (including ability to achieve operational competence of recommended equipment)
  - Memory
  - Cause and Effect
  - symbol use and understanding (objects, photos, printed words)
  - learning style (imitation, modeling, new learning, response time)

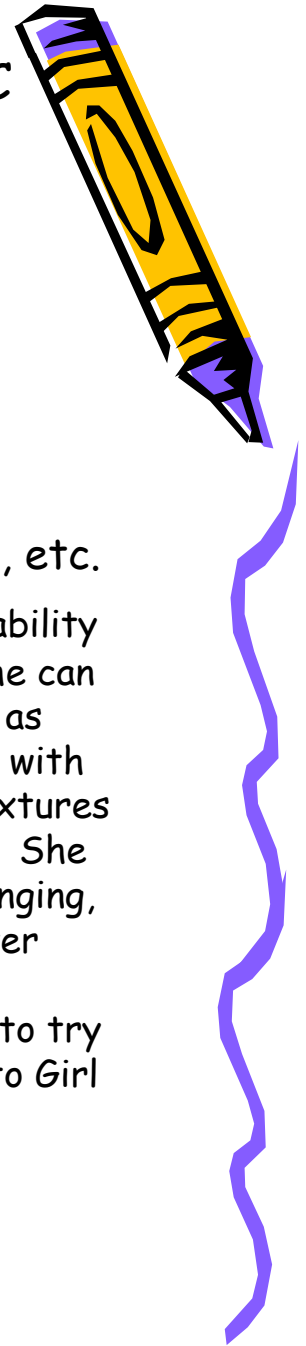
Girl is able to understand Mayer Johnson icons, photographs, and black and white line drawings. It is unknown if she can read single words other than her name. She is able to locate any type of vocabulary word/concept located on her communication device following initial presentation of item.



- Pertinent sensory and perceptual issues impacting use of AAC systems

- Vision: tracking, visual field, lighting, angle of the device, size of symbols, contrast, spacing, acuity.
- Hearing: acuity, localization, understanding of synthetic speech, volume, auditory processing etc.
- Tactile: tactile defensiveness, decrease sensory input, numbness, etc.

Formal visual perceptual testing is not possible due to Girl's decreased ability to complete standardized testing. She is however able to demonstrate that she can distinguish between pictures by pointing or selecting matching pictures as well as finding pictures described verbally by an adult. Girl appears to have difficulty with processing some tactile sensory information. She is hypersensitive to some textures and is avoidant of tasks that are sticky, wet or have strong contrasts of input. She does seek out sensory movement at times such as rolling on the grass, slow swinging, and running. She is able to readily do these activities on the playground however would benefit from a way to easily request these sensory needs appropriately. Teachers, parents, peers and other staff are often asking her many questions to try and figure out what is wrong or what she needs. This is obviously frustrating to Girl and if the other party does not 'figure out' what she wants she either cries or withdraws.



- Rationale for Device Selection

- Include evidence that the individual was a participant and was there. Describe methods and/or equipment and what happened, highlighting communication changes noted. (A video may be submitted to supplement this documentation. May include positioning, access methods, sensory and motor response issues, symbols used, feedback methods and output methods).

During this session, these clinicians considered the following equipment configurations for observation, discussion and/or trial usage.



GoTalk 20 by Attainment Company

This system offered voice out of a real person eight seconds in length. It allowed five cells of "core messages" to remain constant at the top of the communication device. It provided five levels each containing 20 cells for messages. It is light weight and portable allowing Girl to ambulate in her environment with it. This device also has volume control built in as well as an area built in for the overlays to be stored in. This system also includes paper overlays that Girl had to put in and take out. This was a very labor intense process for Girl as she does not have the fine motor abilities to complete this task. Despite reorganization of the vocabulary, Girl often wanted vocabulary that was on a another page while she was conversing with a communication partner. Due to Girl's increase of expressive language, all of the cells are currently used thus this is no longer an appropriate voice output communication for Girl.



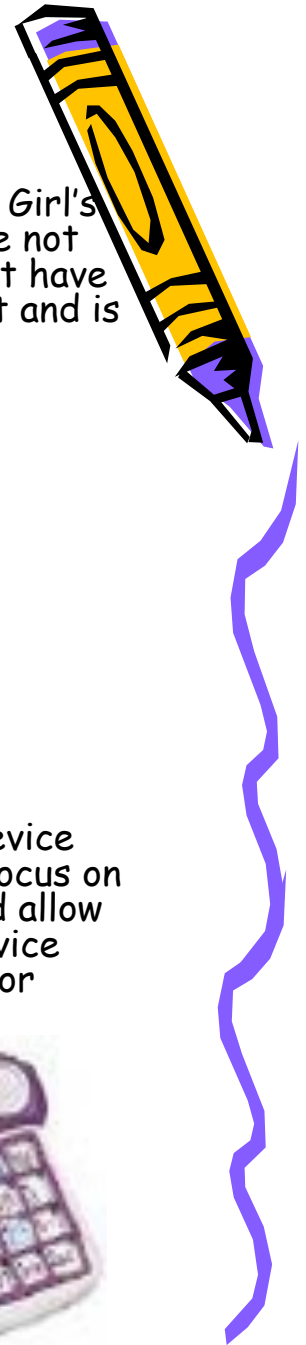
### SpringBoard by Prentke Romich

- This system offered a dynamic display. The size of the cells was too small for Girl's fine motor abilities. The categorization and language used for this device were not familiar to Girl. They also required higher cognitive demands that Girl does not have at this time. The voice output was synthesized voice which Girl often laughs at and is not able to focus on the task when hearing this type of voice.



### ChatBox 40 by Prentke Romich

- This system allows Girl to combine words and create simple sentences. This device offered digitized voice, which Girl does not laugh at and is therefore able to focus on the task. It has 40 different cells with 10 separate paper overlays. This would allow for 400 different cells, which Girl's language may surpass the capacity this device offers. The paper overlays would present a problem due to Girl's poor fine motor control, and would limit her ability to be independent in the classroom setting.

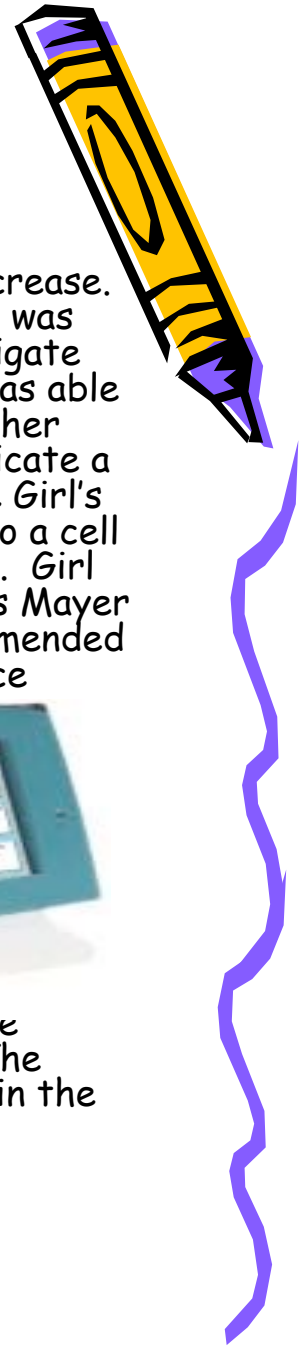


## MiniMo and MightyMo by DynaVox Technologies

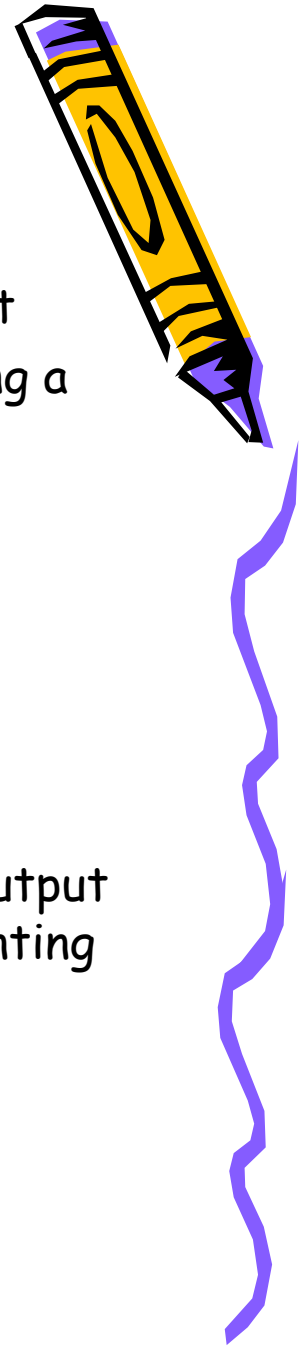
- The MiniMo contains digitized speech, which Girl would not laugh at. This communication device has a dynamic display, which allows the individual to “electronically” change pages. This device has a language system based on the development of language and will allow for expansion as Girl’s language skills increase. When asked, Girl was able to use her index finger to directly select cells. She was able to select the picture she wanted to represent items. She was able to navigate many layers deep into the communication device. Once many layers deep she was able to go back to the original page. When activating a cell, she was able to look at her communication partner. She was able to activate two cells in succession to indicate a phrase. She was able to clear the message when provided a point cue. Despite Girl’s tactile defensive nature, she allowed the clinician to initially guide her finger to a cell as a teaching technique. She was then able to independently activate each cell. Girl smiled a lot and then made many happy verbal noises. The symbol set tried was Mayer Johnson. Due to Girl’s small structure the MiniMo with carrying case is recommended due to its weight of 3 pounds 5 ounces rather than that of the 5 pound 13 ounce MightyMo.



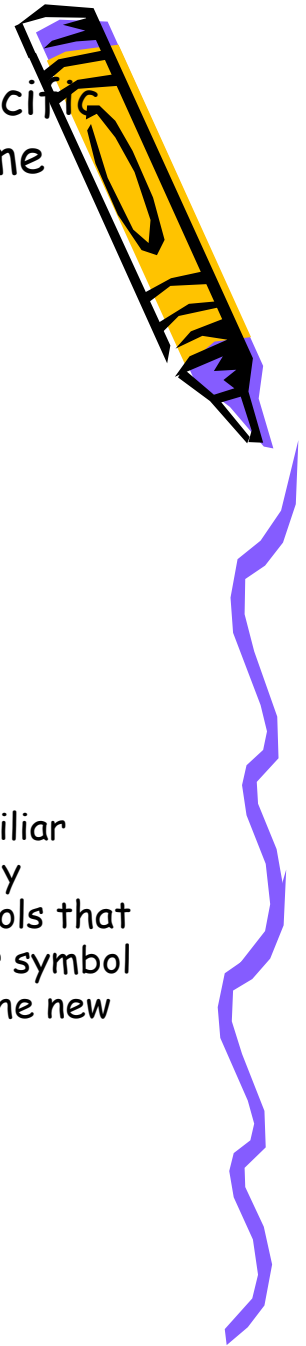
- All letter-based systems (e.g., LINK, Lightwrighter) were not considered as an alternative because Girl does not currently know the letters of the alphabet or how to read. She requires picture-based system. The MightyMo supports a wide range of possibilities for Girl to express her needs in the environment around her.



- Summary of evaluation results are related to how the present communication needs will be met by AAC intervention including a prognostic statement which includes current and future expectations for client abilities/competencies with the implementation of the proposed system.
- Identification of the specific recommended AAC system components including types of access, weight, size, display, output (print, speech, display, none), portability, customization, mounting requirements, switch requirements, programmability, representation system, durability and warranty



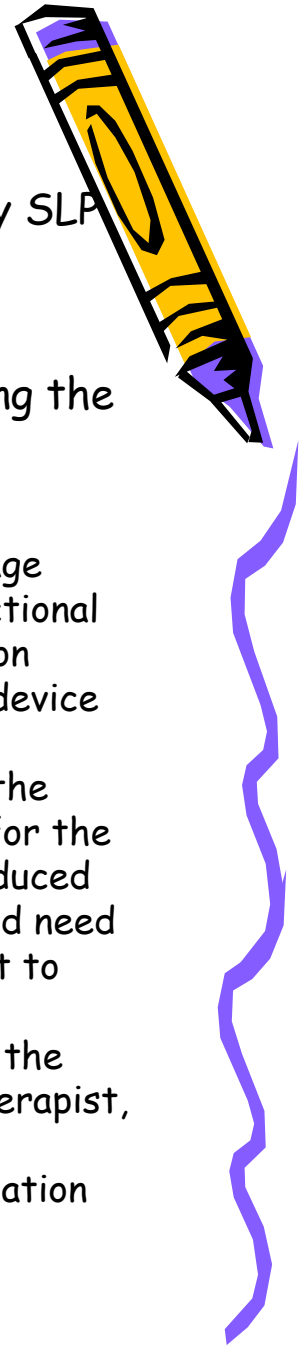
- List the specific equipment recommended. Rationale for specific recommended device when two or more devices meet the same need with the same projected outcomes.
- Weight: 5 pounds 13 ounces
- Size: 12" by 9" by 3"
- Display: 12.1" active matrix color TFT-LCD
- Battery: 12/3.7 V li-ion cells, pack is 7.4 @ 13.2Ahrs
- Average Battery Run Time: Continuous use 12 hours
- Power Transformer (charger): AC 100-240 V 1.0A 50/60 HZ DC 12V 3A
- Operating System: WinCE
- Speech Output: Digitized speech and sound
- Price: \$2724.00
- The symbol system recommended is Mayer Johnson as this is what Girl is familiar with and has previously used. The Mayer Johnson symbols also more concretely represent the actual objects as opposed to some of the Prentke Romich symbols that are more abstract and may represent more than one word or idea. If another symbol set were introduced, it would take Girl a significant amount of time to learn the new symbols. There are no special mounting or activation methods to consider.



- Plan of care/long term goals

- Plan for teaching individual and communication partners
- Recommended frequency of consultation and direct treatment by SLP
- Follow along plan
- Frequency of periodic re-assessment
- Name of person or people who will be responsible for programming the device, and for trouble shooting any technical difficulties

It is recommended Girl receive three half-hour sessions of speech/language pathology treatment per week to learn to use her device to meet her functional communication goals. The focus of speech-language treatment should be on continued development of operational competences and generalization of device use to daily communication needs. Her family is encouraged to attend speech/language treatment sessions so they may assist her in the use of the device as needed. The speech language pathologist would be responsible for the initial programming of the communication device. When Girl is first introduced to the communication device a large amount of consultations services would need to be provided to her family, and educational team. Periodic reassessment to determine Girl's abilities would be completed by the speech and language pathologist. The people responsible for programming the device would be the speech and language pathologist, Girl's classroom teacher, occupational therapist, physical therapist, her mother and two older siblings who have shown an interest in programming the previously available communication devices.

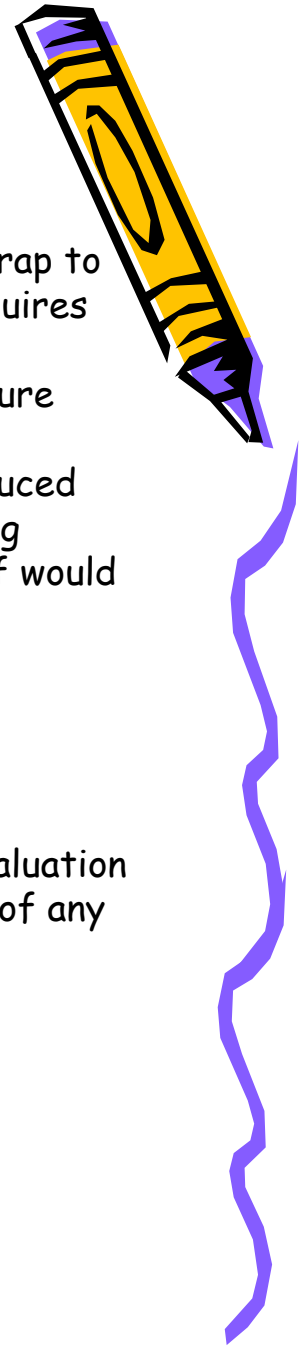


- Include a safeguarding plan

The communication device will have a carrying case to protect it as well as a strap to allow for functional portability with *Girl* in her environment. Currently *Girl* requires an adult to be available to her when using her communication device due to her inability to put the overlays into the device. Rules would be established to ensure proper use and care of the communication device. In the event *Girl* becomes frustrated, the communication device will be removed by an adult and reintroduced when the area is safe. The communication device will not be use outdoors during inclement weather, or near the playground equipment. In-servicing of the staff would be completed. The communication device would need to include a warranty.

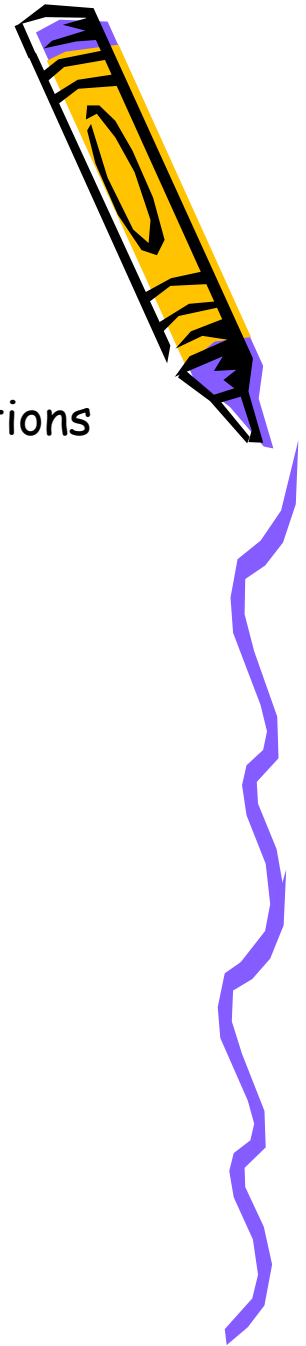
- Include disclaimer about your position

The speech-language pathologist and occupational therapist completing this evaluation are not employees of and do not have a financial relationship with the supplier of any augmentative alternative communication devices.



# Other documents to include in AAC evaluation

- Any past speech and language or occupational therapy evaluations
- A letter from the physician stating medical necessity and agreement with the outcome of the AAC evaluation
- A quote from the equipment supplier
- Funding Packet from AAC Company
- A copy of both sides of the individual's insurance card



# Different Types of Communication Devices

## Low Tech Devices

Switches

Step by Step (Little and Big)

Big Mack

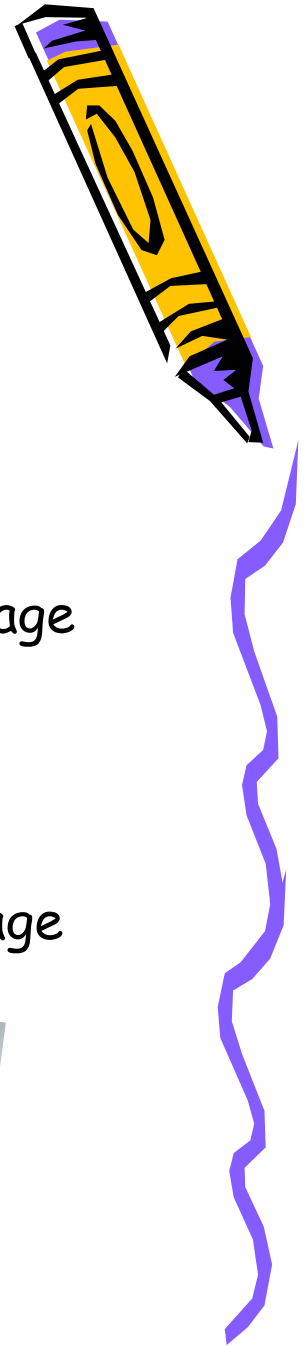
Jelly Bean



Body Language

PECS

Sign Language



# Mid Tech Devices

The individual has the choice of several items, but the display is fixed

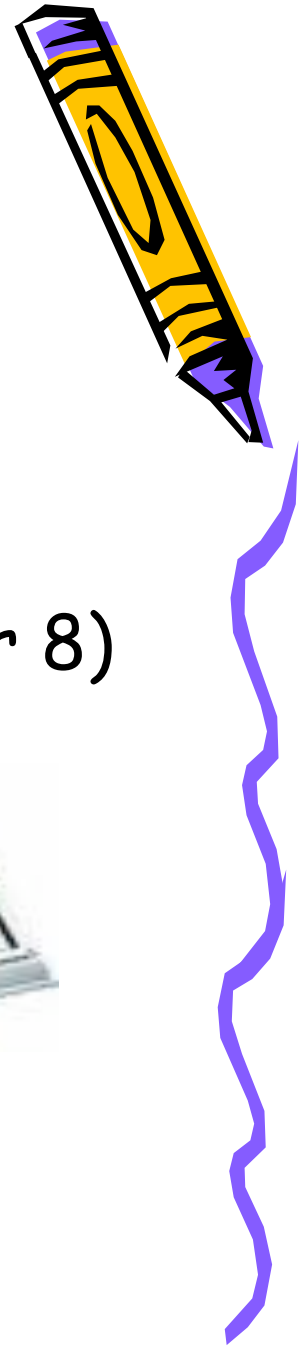
- Go Talk (4, 9 or 20)



- Cheap Talk (4 or 8)



- Pocket Go Talk



# High Tech Devices

These devices have dynamic display. They are dedicated devices (used for communication only), other are computers with communication abilities

- I Chat



- Chat PC

- Light Writer

- TANGO

- Mercury

- Gemini (Mac)

- DynaVox V Series

- EZ Keys

- Spring Board

- Vanguard

- Pathfinder

- MT4, DV4

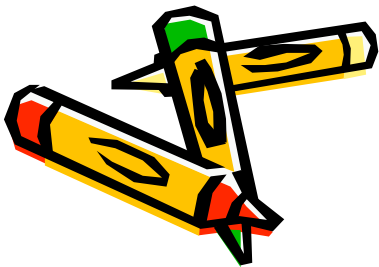
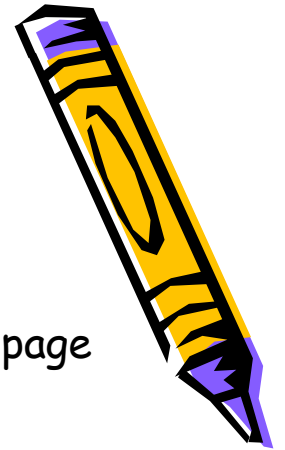
- Mini Mo, Mighty Mo

- Words + Toughbook

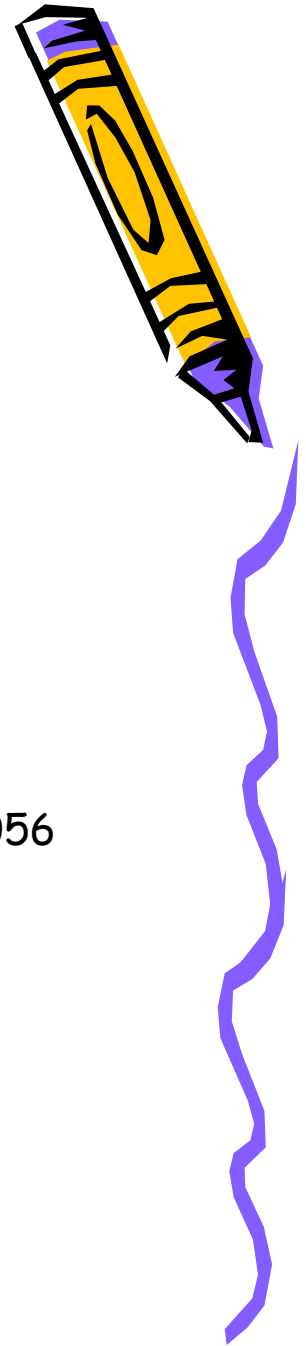


# Norm Referenced Assessment Tool for AAC - Test of Aided-Communication Symbol Performance (TASP) By Joan Bruno, Ph.D.

- Starting point for designing or selecting an appropriate AAC device page set.
- TASP uses Picture Communication Symbols and complements other components of the AAC assessment process.
- Results help design communication boards and establish appropriate AAC intervention goals and strategies
- To benchmark progress in aided communication performance.
- Appropriate for children through adults who have the physical ability of functional pointing.
- Administration time is 10 to 20 minutes, and scoring procedures are objective and rapid.



# Resources and Contact Information



## Funding Resources

- NH Medicaid Office
  - Mary Shain M.S. CCC-SLP  
Phone and Fax 603-526-2940  
1-800-397-0191
- The Funding Manager CD
  - Available free of charge from  
DynaVox Technologies
- [www.aacfundinghelp.org](http://www.aacfundinghelp.org)
  - 10 United States Funding Sources

## Representatives

DynaVox Technologies  
[www.dynavoxtech.com](http://www.dynavoxtech.com)  
Greg Weisel NH Rep.  
[greg.weisel@dynavoxtech.com](mailto:greg.weisel@dynavoxtech.com)

Prenke Romich  
Mark Wood 1-802-388-0056



Questions?

