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Solutions

...to increase, maintain or improve the functional capabilities of children with disabilities

Hamilton County Educational Service Center HCESC "Together We Make the Difference"

Southwest Ohio Regional Assistive Tech Newsletter

State Support Team 13

Butler Clermont Hamilton Warren Southwestern Ohio EBC's SST 13 AT Consortium

The focus of this issue is on communication devices. With new technology hitting the market every day, it can be a challenge to keeping current with the technology and features that are available on each. We hope this edition of Solutions and the companion Augmentative Communication Device (ACD) Comparison Charts will provide you with some useful information around selecting and customizing the right communication device for each individual student.

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Intervention Solutions

MANUVERING THE LANGUAGE SYSTEMS ON ACDS:

1. MINSPEAK/UNITY

- **What is Minspeak / Unity?**
Minspeak was developed over 25 years ago by Bruce R. Baker. It was initially designed to be utilized on any computer system. During its development, Prentke Romich took this work and utilized it to create the Unity language system. Unity is based on the idea of semantic compaction. **It uses a small set of icons in short sequences to produce words, phrases, and complete sentences.** This method has been proven to be a fast way of communicating for the experienced user. **It is faster because it relies on core vocabulary, is rule based, the icons remain in the same location all of the time, and one doesn't have to read/spell to access core vocabulary or navigate through countless pages to find the desired vocabulary.** Above are some examples of the sequence of icons one would select to produce the desired vocabulary word/ phrase.

- **How is vocabulary organized?**
When using minspeak, the vocabulary is already organized for you. By selecting icons in a specific sequence, preprogrammed words will appear. If you want to add new words, you create a new sequence (i.e. for user's name, relatives, specific locations, etc.). This system does not require a lot of user programming, but does require a lot of user training in learning the icon sequences. If remembering icon sequences are challenging, Icon predictors are available in some of the unity systems. This allows you to select one icon and only the icons that can complete a sequence are left unshaded, and thus able to be selected.

Many minspeak systems can also be programmed as a dynamic device, bypassing the minspeak features, by programming new pages and activity rows so that it can also be organized by specific activities and category links.

- **Required skills?**
  Students who are most successful with this type of language system are those that undersand the following skills:
  - concept associations
  - objects and their functions
  - part/whole concepts
  - category associations
  - rhyming associations (sounds like club)
  - look alike associations (looks like truck)
  - multiple meaning (i.e. the sun icon representing "hot", "happy", and "yellow")
  - icon sequences
    ~ sun + thermometer icons means hot
    ~ apple + action man means eat

  For a detailed assessment protocol, see the protocol developed by Gail VanTatenhove at www.vantatenhove.com

- **Interface with other Technologies:**
  Most PRC devices with Unity/Minspeak can be used to: compose written information and can be printed off through an infrared (IR) computer interface, allow full computer access (using the device to input information to the computer), have Environmental Control Unit functions, some are Bluetooth compatible, and some have wireless phone kits. The ECO is a full featured computer offering features that are transparent and thus can be used between software applications (i.e. input text into email using Unity).

- **Devices:** Unity/ Minspeak is currently available on the following devices:
  - ECO
  - Vantage PLUS - Unity 84, Unity 45 Enhanced plus others by PRC
  - Vanguard II - Unity 84, Unity 45 Enhanced plus others by PRC
  - SpringBoard PLUS by PRC
  - Chat PC by Satillo

- **Ideas for teaching/ training unity:**
  www.prentrom.com
  www.vantatenhove.com

2. GATEWAY

- **What is Gateway**
  - In 1997, Joan Bruno created pages for Dynavox. She began to compile them into page sets and named them Gateway. Users select a specific picture or word to express his intended meaning. Gateway has continued to develop over time and now comes in several different page sets: Gateway 12, Gateway 20, Gateway 40, Gateway 60, and Gateway Pro. The levels build upon each other and represent developmental stages of typical language development.
  - Gateway are basic page sets. They represent the core of the vocabulary system, but custom pages can still be added to the core page sets by using the standard Dynavox programming. This allows for user preferences and needs.

- **How is the vocabulary organized?**
  - Gateway is organized by categories. The user selects a category from a main page and then a popup appears that relates to the category. The user then can select the desired word. Frequently used vocabulary can be accessed using an average of less than 2 selections per word. The following table shows a typical sentence and the required number of key selections.

Sentence	# of Words	# of Key Selections		
		Gateway 40	Gateway 60	Pro
I want to go outside.	5	6	6	6
I don't want to go to school.	7	8	8	7
Can you help me?	4	7	5	5

  - Color-coding is used throughout the Gateway Series 4© page sets. People = yellow; Verbs = green; Little Words = pink; Words That Tell About = blue; Things and Foods = orange; and Places = purple.

Gateway 12

Gateway 12 is designed for young children whose receptive language is at the 18-24 month level. It includes 12 different page sets.

Gateway 20

Gateway 20 was developed for elementary aged children whose receptive skills are at the 24-30 month level. These page sets allow for creating basic sentences.

Gateway 30

Gateway 30 was designed for adolescents and adults who typically communicate in single or multiple word utterances and do not use function words (e.g. the, this, with) or word endings such as “-ing or “ed” as a part of their spontaneous message generation. The vocabulary is related to activities of daily living.

Gateway 40

Gateway 40 is for children whose receptive skills are approximately at the 30-60 month level. The user can learn to use word endings, articles and prepositions. Spelling and reading are among the students educational goals and/or abilities.

Gateway 60

Gateway 60 targets children and adults who would be constructing 5-6 word sentences including articles, prepositions, and pronouns. The user would also require access to the spelling and word prediction features.

Gateway Pro

Gateway Pro is designed for users who can access over 100+ buttons on a page and have fully developed syntactical skills. A typical user would demonstrate fully developed syntactical skills.

- **Required skills?**
  Any child or adult, who can categorize words according to people, actions, places, and objects at about the 18-24 month expressive language level can begin with Gateway12. As the users skills develop, they can bump up to the next Gateway level.

- **Devices**
  Gateway is found on Dynavox products such as Vmax/ V and DV4/ MT4 and older versions.

- **Interface with other technology?**
  The newer Dynavox devices have a USB port, which allow Pen drives, printers, etc to be connected. The V and Vmax are full blown computers allowing you to run any Microsoft XP compatible software. **Word Power** is an optional add on. The V devices have a free email account that enables the user to send a message using one button. An optional **PhoneIT** allows augmented communicators to hold private telephone conversations using a standard telephone with their device. You can dial, and “pick up” and “hang up” the receiver with the device. The V contains preprogrammed pages for the PhoneIT, and infrared ports which allow you to operate programmable remote control devices (i.e. t.v., lights). Bluetooth and WiFi are also options.

For the older devices (MT4) there is also an optional infrared wireless computer access device called **AccessIT**. This allows the user to easily navigate between computer access (i.e. typing, printing) and speech. A student can easily create messages using the communication pages, and the content of their text window can be sent to the message section of an email with one hit. For the V users, AccessIT allows operation of an external computer.

- **Ideas for teaching/training:**
  - http://www.gatewaytolanguageandlearning.com/TherapyTools.html
  - http://www.dynavoxtech.com/training/toolkit/

3. SPEAKING DYNAMICALLY PRO (SDP)

- **What is Speaking Dynamically Pro?** Speaking Dynamically Pro is a versatile voice output software program, that uses categorical based communication. It was developed by Mayer Johnson and comes in combination with BoardMaker. At its most basic level, it takes a communication board that you have created in Boardmaker and gives it the ability to speak with a double click. You can set up the program to start with a main page from which all other boards link to, so that the communicator can more easily navigate.

- **How is vocabulary organized?** Only a few sample boards are premade. The vocabulary can be arranged any way that you would like it to be. You create each board using the boardmaker symbols. Vocabulary is typically arranged by category or high frequency words.

- **Required skills?** Students who are most successful with this type of language system are those that understand the following skills:
  - recognize pictures and/or auditory prompts
  - categorize and recall what messages are available on various displays
  - remember desired message as they move through the displays to construct it

- **Interface with other technology?** SDP isn't transparent in that it doesn't necessarily integrate with other technology. For example the onscreen keyboard can't be used with email, as it is dedicated to just SDP. In order to use SDP for email you need to compose your message, copy it and then paste it into an email browser. SDP will launch other programs but can not be used within other software applications.

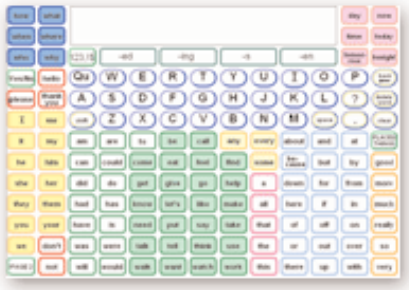
- **Devices**
  With the recent accessibility of numerous durable tablet PCs, there has been an explosion of devices that are able to run this software. At this time, any device that has the minimum requirements is able to run this software- it could be a handheld device or stationary one. Older Mercury and MiniMerc's (Tobii/ATI) traditionally used SDP, but that will be changing in 2009.

- **Ideas for teaching/training:**
  It is a flexible system which allows you to organize your boards as either categorical like Gateway or with a combination of core and spelling like Word Power.

4. WORD POWER

- **What is Word Power?** WordPower software is a unique, word-based vocabulary design for an AAC device. It was designed by Nancy Inman. WordPower combines the features of core vocabulary, links to categories/categorical pages, spelling, and word prediction. WordPower takes advantage of the fact that a core vocabulary of just 100 words accounts for approximately 50 percent of words spoken. This powerful system facilitates fast and efficient communication for nonspeaking individuals in a short period of time. Kucera and Francis' 1967 study, analyzed written language samples for word frequency, revealed the following:
  - The top 10 words account for 24% of written text
  - The top 50 words account for 41.2% of written text
  - The top 1100 words account for 48.1% of written text

- **How is Vocabulary organized?** The main page of Word Power is arranged by color coded parts of speech. The vocabulary that is present on this page represents the most commonly used words in oral communication. The user also has quick access to other words based upon categories (i.e. ? words, school, food) and typically a keyboard with word prediction to spell novel words. It can come in various formats including text based, picture based, or scanning. It can also come in different sizes/number of cells (i.e. 45, 60, 128).



Speaking Dynamically Pro

DynaVox Series 5

Picture WordPower

Picture WordPower - No Keyboard

- **Required Skills?** Students who are most successful with this type of language system are those that understand the following skills:
  - recognize pictures and/or auditory prompts
  - categorize and recall what messages are available on various displays
  - remember desired message as they move through the displays to construct it
  - sequencing words to create a sentence
  - spelling novel words

- **Interface with other technology?** Word Power is just a set of preprogrammed pages that integrate with other technology such as SDP, VS communicator, etc…

- **Devices:** It can run in combination with many other language programs including: Speaking Dynamically Pro, DynaVox Series 4 and 5, VS Communicator, Pathfinder and Vantage, Mind Express

- **Ideas for teaching/training?** Encourage the use of using the core words and for fringe words (words used less often) have the student either spell them using word prediction or go to the pages of items listed by categories to find the word.

5. VS COMMUNICATOR

- **What is VS Communicator**
  VS Communicator is a communication program that runs with Microsoft Windows. It comes with some ready made page sets that include text based communication and category dependent pages. A set up wizard allows you to choose which boards you want as your “main page” very easily. Other than the page sets provided, the VS Communicator is dependent upon a programmer to customize page sets and design new pages from scratch. Pages created in SDP can be transferred to VS Communicator. Users can interact via head mouse, eye tracking, switch controlled scanning, mouse or joystick input. Viking contains both word and phrase prediction, web cam support, instant messaging and a functioning appointment calendar.

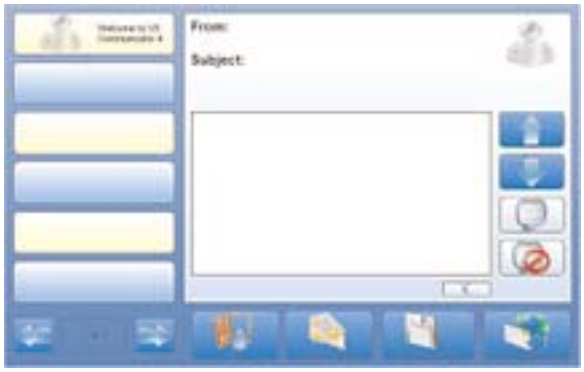
- **How is the vocabulary organized?**
  Typically the vocabulary is organized in a dynamic display categorically based manner. However the system is flexible to set up any way you would like. There are lots of preprogrammed pages including: text based communication, symbol based communication, keyboard, email, text messaging, games, MP3 player and TV remote pages.

Words Pronto

Childs' General Communication

- **Required skills?** Students who are most successful with this type of language system are those that understand the following skills:
  - recognize pictures and/or auditory prompts
  - categorize and recall what messages are available on various displays
  - remember desired message as they move through the displays to construct it

- **Interface with other technology?**
  It allows for computer access, onscreen keyboard, email, environmental controls and communication. In the premium edition of VS Communicator, it can be used to text message with cell phones, email, and command infrared controls. Preprogrammed pages are set up for email (simple and complex), MP3 player and much more.



- **Devices**
  - VS Communicator is a software program, so it can be used on any Windows machine or tablet PC.
  - Used on the Forbes Rehab Solutions ComLink device.
  - MiniMerc and Mercury (after 1/2009)

- **Ideas for teaching/training:**
  - webinars and interactive on- line training:
    http://www.assistivetech.com/webinars/recorded_webinars.htm
  - for pdf files related to VS Communicator:
    http://www.tobii.com/assistive_technology/training/viking_communicator.aspx
  - text messaging with VS Communicator:
    http://www.spectronicsinoz.com/downloads/faqs/VSComm-4_Text-messaging-Quickguide.pdf

Comparison of Language Software on ACD's

Feature	Dynavox V/Gateway	Minspeak/Unity	Speaking Dynamically Pro	VS Communicator 4
Access method: Dwell select	Yes	Yes	Yes	Yes
Symbol Set	DynaSyms and PCS, import pictures	Unity Symbols, optional PCS, import pictures	Boardmaker PCS, import pictures	SymbolStix, import pictures, optional PCS
Drag and drop pictures	Yes	No	Yes	No
Hide and show cells	Yes	Yes	Yes- Version 6	Yes
Voices	Acapela, AT&T, DECtalk, Verivox	Natural Speak, Realspeak, DECtalk	Realspeak, any SAPI 5 voice can be used	Acapela, AT&T optional
Button Magnification	Yes	No	Yes	
Password Protection option	Yes	Yes	Yes	Yes, not password protected, but inaccessible for user to change if desired
Highlight words as spoken option	Yes	Yes	Yes	No
Message window saved as text document option	Yes	Yes	Yes	Yes
Print message window option	Yes	Yes	Yes	Yes
Word Prediction	Yes	Yes	Yes	Yes
Word Prediction with symbol support	Yes	Yes	No	No
Spell check message window	Yes	No	No	No
Transparent Access other software applications	Yes	Yes (Eco)	No	Yes
Premade keyboarding pages	Yes	Yes	Yes	Yes - several
Premade text messaging & email pages	Yes	Yes (Eco)	No	Yes
Optional Language Package Add ons	WordPower, Alphacore, Communicate 4	Word Power	WordPower, Velocity, Functionally Speaking	WordPower, Functionally Speaking, Socially Speaking
Environmental Control Capabilities	Yes	Yes V/VMaxx	Yes, when run on a	Yes
Calculator	Yes	Yes	No	Yes (2, simple and advanced)
Media Player Functions (MP3)	Yes	Yes	No	Yes

Adapted from: http://www.spectronicsinoz.com/downloads/faqs/AAC_Software_Comparisons.pdf

Expanding Language Skills on an Augmentative Communication Device

After the first 50 words, the AAC system should follow normal language development principles. These include:

- Have words from a variety of word classes- pronouns, verbs, negations, prepositions, question words, modifiers (gone, more, some), generic locations (here, there, away).
- Add personal words for personal needs (key people, places, etc.)
- Add verb phrases. Include main verbs, little verbs (is, are, and verb endings).
- Noun phrase development: Use more generic words and then add (this, that, these, those, other, more, one, thing.)

Language Function	**Single word** Single nouns, verbs, adjectives	**2 word combinations** Noun + verb Verb + noun Noun + noun Pronoun + Noun Pronoun + verb Prep + noun Noun + prep Adjective + noun	**Transitioning to complex language** Adding pronouns, articles (a, the), adjectives, prepositions to noun/verb phrase, demonstratives(this/ that), noun plurals, modal (can/will), auxiliary verbs (is, are, was) BEGIN TO INTRODUCE: Verb endings, verb tenses, S possessives
Greet	Hi	Hi, John Hey you.	How are you?
Request Object/ Action	Cookie Music Go More Help	Want cookie Mommy book Me read Get that Different book That mine Go store More cookie	I want the chocolate cookie.
Protest/ Rejection	No Mine Stop	No go No milk	Don't want to go No want that I no play
Comments/ Describe	Messy Big Yuck Blue Fun Good Bad Like	Messy shoe Big dog That one Like train	The messy shoe on floor. Want big cookie Sky is blue Dog in house Cookie on floor
Asks questions	Mine? Me? Noun? (Puppy?)	What that? Where Daddy? More cookie? All done work?	Why did _____ Where is _____ When did _____ What you want?
Cessation	Done All Done	Done school Done work Book done	I done working I done now

First Fifty + Words

1. Again
2. All
3. All done
4. All gone
5. Away
6. Bad
7. Big
8. Busy
9. Come
10. Different
11. Do
12. Don't
13. Down
14. Drink
15. Eat
16. Feel
17. Get
18. Go
19. Good
20. Happy
21. He
22. Help
23. Here
24. I
25. In
26. It
27. Like
28. Little
29. Make
30. Me
31. Mine
32. More
33. My
34. Not
35. Now
36. Off
37. On
38. Out
39. Play
40. Put
41. Question
42. Read
43. Sad
44. She
45. Some
46. Stop
47. Tell
48. That
49. There
50. Thing
51. This
52. Turn
53. Up
54. Want
55. What
56. Where
57. Who
58. Why
59. You

Excerpted from: http://www.vanatenhove.com/files/NLDAAC.pdf

DETERMINING A LANGUAGE SYSTEM: WHERE TO START?

Communication is a complex task. It requires many different skills in addition to the motor components of forming sounds with the muscles of the mouth. It requires a knowledge of language and vocabulary. If we look at typical language development some of the building blocks include:

- **Establishing Cause and Effect** – knowing that when the child makes a noise or movement, something will happen.

- **Labeling** – being able to associate vocabulary or item names with the actual object.

- **Learning what Symbols Mean** – For students who are non-verbal they must be able to link a symbol or picture to the real item because they cannot express the label verbally. Unless the student can develop a reliable means of symbolic communication, they will never be able to talk about anything beyond the "here and now". This can be a challenging step for some, because it is not a typical part of language that they see used on a daily basis. That is why it is so very important to model, model, model! There are several methods that are used to help teach students how to be able to link a symbol on a communication device to the concept or item. Some of these include:

  - **Structured Teaching of Individual Symbols:** The most commonly used method is the **Picture Exchange Communication System (PECS)** by Bondy and Frost. PECS is a method that uses discrete trail training to systematically teach functional words, which are highly meaningful to the child (i.e. food items, toy items). This is a highly structured approach, which has the student exchange a picture for an item which is highly motivating. It moves through stages of discriminating pictures to simple sentence development (i.e. I want__) and into more complex sentences using adjectives (i.e. large, small, blue).

    ~ Another method of structured teaching is **Aided Language Stimulation** as described by Goossens, Crain and Elder. In this method activity specific language/vocabulary displays are used to model the use of augmentative communication by pointing to the pictures as the teacher teaches. This method provides not only support, for receptive language building, but also a means for the student to express his/her thoughts as well.

  - **One Symbol One Meaning Devices:** These devices provide voice output to a picture overlay (typically paper), however every time a student hits a location the word will be the same. These devices typically hold from 1 message to 64 messages. Common devices that may use the language concept of one symbol one meaning include: Big Mack (1 cell), Hawk (9 cells),Cheap Talk (4 or 8 cells), etc… If a student has symbolic knowledge to link pictures with objects or concepts this might be a great first step in expanding their language. The advantage to these systems, are that they are very concrete and simple. The disadvantage is that the vocabulary set is limited to the number of cells on the device.

  - **Leveling Devices:** These devices provide voice output to a picture overlay (typically paper), however there are different levels or pages of vocabulary. For example the top right cell on one overlay may contain the message "I want", and on another overlay could contain the message "today is". To access the various vocabulary choices the student or someone else would need to identify which overlay is needed (vocabulary set needed) and change the device to the appropriate level. The advantage of this system is that it allows the student to have access to more vocabulary choices. The disadvantage is that the vocabulary choices are still limited to the number of choices the device will hold, and someone may have to manually change the level. Please note however that many newer devices have bar coded systems that automatically recognize what overlay is put on and will change the vocabulary set to the correct level without someone having to manually turn a knob to do so.

- **Expanding your language skills, by having almost a limitless amount of vocabulary choices, so that forming phrases and sentences is easier.**

  - **Minspeak or Semantic Compaction:** This system is designed around the concept that multiple meanings can be associated with various icons. When you look at a single symbol you can have it represent a category, color, function etc…. By sequencing these concepts you can have access to almost a limitless amount of vocabulary choices. Typically single words would have no more than 3 sequences to retrieve a word (i.e. apple + eat = eat, apple +snack + cookie = cookie, drink + milk = milk) . The advantage of this system is that it allows quick access to an limitless number of vocabulary choices,

allowing the user to speak in grammatically correct full sentences. The disadvantage is the student must recall the symbol sequences to find vocabulary. For more information see the article on Unity on page 1.

- **Dynamic Devices:** These systems are typically organized by category (i.e. food, school, verbs) or activities (math class, circletime, jokes). The advantage of this system is that it allows access to almost a limitless number of vocabulary choices. The disadvantage is that unless the vocabulary is carefully organized, it could require navigating between many pages to form grammatically correct full sentences. In addition unless using a pre-packaged set of vocabulary arrangements, it requires a lot of programming to get all the words you want entered. There are some prepackaged page setups to help with this organization. One common one is Word Power. For more information see the article on page 4.

- **Text based Systems:** These systems are for literate individuals who can locate vocabulary by typing the words in. There are some tools to help with the speed of this, such as word prediction, where once the first few letters are entered, words are predicted and you can choose them without typing every single letter. The advantage of a text-based system is that you don't have to worry about if you have pre-programmed a word or not. As long as the individual can spell – they can say anything they want to. The best users of voice output communication devices often use a combination of locating pre-stored messages (either in picture or text) which can either be through a dynamic system or minspeak system in combination with inputting text for novel messages that aren't pre-stored.

- **Needing access to both communication software as well as other technologies/ software. In this case an integrated computer based system is most desirable.**

References:

- *Considering Expressive Augmentative Communication Supports For Student With Autism In The School Setting*, by Keri Huddleston, Closing the Gap June/July 2004

STRATEGIES FOR DESIGNING DYNAMIC DISPLAY COMMUNICATION DEVICES:

Dynamic display communication devices are typically organized by either categories (i.e. food, school, games, social) or activity specific (i.e. snack, art class, circletime, Brown Bear book). Common Dynamic devices include the Dynavox products, Tech Touch, or laptop systems with Speaking Dynamically Pro or VS Communicator. It offers a student access to a wide range of vocabulary that can either be single word, phrases or sentence based. However a common question is how to organize these systems so that the students use them most functionally. Some tips that should be considered when designing these systems include:

1. There needs to be a **systematic organization to the boards** – This would include keeping navigational buttons (go back, go to main board, clear, more choices) in consistent locations across all your boards,

2. Make sure that there is a **variety of all language functions-** boards that are noun based are extremely limiting. Be sure to include adjectives, verbs, pronouns, etc.. so that the student can gain attention, request, reject, greet, comment, question, respond to questions, describe and clarify.

3. Consider the **most frequently used words in the English language** – these should be in an easy to get to location so that sentence building can easily be accomplished. These words are referred to as core words. The advantage of teaching core words is that they are useful across a broad number of events or activities and thus allow students to combine these into phrases and sentences for real communicative power. There are many lists of these words. Some websites to look at include:

   - http://aac.unl.edu/vocabulary.html
   - http://www.vantatenhove.com/showfolder.php?id=37
   - http://www.aacinstitute.org/Resources/ParentsCorner/SharingAndIdeaAlbum/Vocabulary/100_Interview.pdf
   - http://homepage.mac.com/terryjohnmick/jafw/html/lang/vocab/329_wordlist.htm
   - http://www.aacawareness.org/500WordsMostFrequentlyUsedChildrenReadingUSA.pdf

Also see the First 50+ Words on page 9.

4. Be sure you have **selected vocabulary that is powerful and important to the user**. By interviewing parents and those close to the student, you should be able to come up with vocabulary that is meaningful to the student. We all have certain interests and things we like to talk about. Make sure you consider the students interests when developing his vocabulary set. It might include conversations around baseball, The Jonas Brothers, or even the "gossip of the class".

5. **Don't include words that can be understood by another means** (i.e. verbally, head nods)

6. **For beginning AAC users, include words that can regulate** such as "more, again, help, finished, different" then **add words to comment** such as "funny, good, bad, like, don't like."

7. Using a AAC device, should not be the end but only the means. **The goal is developing and expanding language skills in a developmental manner**. For example, single words expand to verb or noun phrases and then into sentences, etc… See page 8 for more information.

8. When a student moves into **two word combinations they need access to**:

    - **verb phrases** - Be sure the student has access to a variety of main verbs (i.e. do, put, get, make, want, read, drink color), "little" or helping verbs (i.e. am, is, was, were) and verb endings.

    - **Noun phrases** – be sure to include frequently used generic nouns such as "this, that, these, other, more, one, thing, any," etc…

    - **Adjectives and Adverbs** (i.e. now, big, little)

9. **Include messages that control the conversation** (i.e. "wait a minute I have something to say, I need something") and put them in a quickly accessible location.

10. **Start small** – develop a plan that defines the specific settings/locations/classes/ events that the device will be targeted first **then gradually expand these to more and more settings**.

11. **Select vocabulary based on what the student needs to say to participate in his curriculum or through scripting**. Plan ahead of time what the student could say to meet his/her language goals (i.e. building a verb phrase, using 4+ word sentences, using auxiliary verbs, etc…). Know where this vocabulary is located so that you can model and prompt/cue.

References:

- *Strategies For Designing A Truly Dynamic Display System* by Dawn Russel and Bridgit Bruce, Closing the Gap June/July 2000.
- *Considering Expressive Augmentative Communication Supports For Students With Autism In The School Setting* by Keri Huddleston, Closing the Gap June/July 2004.
- *Normal Language Development, Generative Language and AAC* by Gail Van Tatenhove, www.prentrom.com

MULTIMODAL COMMUNICATION:

Question:

I heard that my student who uses a Dynavox should use a multimodal communication system and I am confused. Shouldn't he only use his Dynavox to communicate in all situations? Wouldn't that be confusing to use a multimodal approach?

Answer:

Multimodal communication is the use of more than one type of communication method by a person. Multimodal communication is natural, we all use a variety of communication methods all the time. We use facial expressions, gestures (head nods, pointing to things) in combination with verbal communication. Generally speaking, we all use the method of communication in each situation that is easiest and most efficient, as well as socially appropriate. When a student uses an ACD it is time consuming and requires more effort. If a child can use the **vocalizations** he/she has to gain a listeners attention, that is often more efficient than using a cell on an ACD device to do so. To expect a child to use his Dynavox for all communication can be frustrating. If it is appropriate to only use a **head nod** (i.e. situations with familiar listeners), or **point to a picture of fringe vocabulary** (words used infrequently in normal conversation, but may be necessary for a classroom unit such as Pluto, or Geos) on a low tech board (instead of going through his pages to find the words) he should be permitted to do so. This however may not be appropriate in a situation in the community with an unfamiliar listener. **By using a multimodal system the communication exchange is often quicker and more effective**, and allows for developing

these lower tech strategies which are important especially when his Dynavox may be in need of repair (which unfortunately happens with high tech devices at one time or another).

COMMUNICATION DEVICE ASSESSMENT:

Question:

We have a student who needs a communication device. I know I need to do trials and collect data, however I am not sure what I should be assessing? Can you help?

Answer:

Yes, there are many components to assess when determining what the most appropriate communication device is. These include:

1. **How will the student need to access a device?:**

   - **Direct selection** - (selects with a touch, joystick, head pointer, eyes, etc…)
     - What **method of direct selection**? Touch enter, Touch exit, is a keyguard needed?
   - **Scanning** -

     - What **type of scanning**? Row/ column, Quadrant/ group, Auditory scan
     - What **method of scanning**? Automatic, Step, Inverse
     - What **switch type**? **Jelly bean**, Entire screen as a switch
     - What **access site for the switch**? Hand, Head, Foot…
     - **What Switch location**_____
   - Are there certain parts of the device that are accessed more easily (i.e. top right)?
   - Does the student fatigue and need different type of access available at different times of the day?

2. **Cell number and type:**

   - What size of cell is needed? (in inches)
   - What is the Maximum cells/messages per page used accurately?
   - Does there need to be space between the cells?
   - Is there a certain arrangement that is necessary for success? (i.e. every other cell, corners…)

3. **What Symbol System is needed:**

   - What symbol system is needed(i.e. objects, symbols, photos, line drawings; text)?
   - Black and white or color pictures/symbols?
   - Color coded symbols (parts of speech, other)?
   - Tactile cues needed?
   - Is or will the student be a speller?
   - Does the student benefit from word prediction?

4. **Number and Type of Vocabulary:**

   - How many vocabulary/choices are needed? (1-500+)
   - What Type of vocabulary is needed? Word based, phrase based, sentence based combination of all per cell?
   - Can the student combine single words to make novel messages?
   - Would the student benefit from prepackaged vocabulary (word power, gateway…)?

5. **Language System (How vocabulary is arranged):**

   - Does the student have a reliable yes/no?
   - **One Symbol One Meaning**
   - **Leveling**
     - Can the student identify which board is needed?
     - Can the student independently change the level/overlay?
   - **Minspeak**
     - Can the student understand that symbols can have several meanings?
     - Can the student recall 2 key sequences?
     - Can the student recall 3 key sequences?
     - Can the student categorize/find categorically arranged vocabulary from pages?

- **Dynamic**
  - Can navigate between #_____pages.
  - Can navigate #_____ levels
  - Type of prompting needed: Physical cue, Visual cues, Verbal cues
  - Does the student understand and use the main/master page function?
  - Can the student use the following features appropriately: go back, clear, close popup, search, scroll, etc..?

- **Computer Based**
  - Does the student need access to other software? What?_____
  - What communication software?_____ _____
  - Maximum number of pages used accurately_____
  - How were the pages set up:
    - Contexts (all vocabulary for lesson on one page)?
    - Categorical/Topics (i.e. clothes, foods, verbs….)?
    - Letters for spelling, word prediction?
    - Core vocabulary(frequently used to create sentences)on one page
    - Combination of above

6. **Language Use:**
   - Is the student able to use the system in appropriate time/context?
   - Was the student able to communicate all functions of language (comment, request, question, respond to questions, greet, etc.)?
   - Was the student able to clarify or correct incorrect messages? If so, how?
   - What is the approximate rate of message production (i.e. number of words per minute)?
7. **Maintenance:**
   - Can the student independently turn on/off the device?
   - Is the student responsible for the device?
   - Can the student maintain the device (i.e. clean the screen, plug in the charger)?
   - Is the level of maintenance (i.e. programming, vocabulary, technical support for trouble shooting) appropriate for the family/and family supports?
8. **Output:**
   - Does the student prefer digitized (recorded) or synthesized (computer generated) speech?
   - Was the voice quality understandable to all and of the correct gender and age?
   - Does the student need a device to help with written output (i.e. poor handwriting), email capabilities?
   - Does the student need a combination of pictures and text for writing?
   - Does the student need to print out this written output?
   - Does the student need environmental controls for operating various electrical appliances (i.e. lights, TV) etc...

MYTHS AND FACTS ABOUT AUGMENTATIVE COMMUNICATION DEVICES (ACD'S)

Myths	Facts
AAC should only be introduced only after all hope of natural speech has been given up.	• It is virtually impossible to predict the future development of speech in a young child (Beukelman & Mirenda, 1992). • Students still need an effective means of communication while trying to develop oral speech. A child who is not able to communicate effectively is at great risk for cognitive, social, emotional and behavioral problems (Berry, 1987; Silverman, 1980). Children who use AAC have shown improvements in behavior, attention, independence, self-confidence, class participation, academic progress and social interaction (Abrahamsen, Romski & Sevcik, 1989; Silverman, 1980; Van Tatenhove, 1987). • Much of a child's cognitive, social and academic progress depend on communication. AAC has been shown to enhance a child's ability in all of these areas (Abrahamsen, Romski, & Sevcik, 1989; Blackstone, 1989; Silverman, 1980)
The introduction of AAC reduces the motivation to work on speech	• The introduction of AAC correlates with the improvement of natural speech – even when no speech therapy has been given (Berry, 1987; Daniels, 1994; Romski & Sevcik, 1993; Konstantareas, 1984; Silverman 1980). • Parents should be told that extensive research has demonstrated that the use of non-speech communication systems does not reduce the motivation for speech communication, and in fact, seems to facilitate speech (Berry 1987, Finch & Romski, 2004). • A simultaneous communication approach in which speech is utilized alongside AAC, seems likely to assist in speech comprehension and production (Beukelman & Mirenda, 1992). • When speaking, children combined the use of symbol combinations to help learn new vocabulary words: the students did better than when they just had the word itself (Williams and Janpole,1991). • Schlosser (2003) summarizes the available research studies on the issue and found that no studies support the position that AAC hinders natural speech development.
A young child is not ready for AAC	• There are no known cognitive or other prerequisites that are necessary for a child to use AAC (Kangas & Lloyd, 1988). • It is impossible to accurately predict a child's ability to learn AAC (Beukelman & Mirenda, 1992; Bodine & Beukelman, 1991). • All individuals with severe cognitive impairments have the right to be given opportunities to communicate by learning communication skills that are effective almost immediately, offer some control over their environment and are age appropriate (Beukleman & Mirenda, 1992; Reichle, York & Sigafoos, 1991; Silverman, 1980).
AAC makes a child look abnormal and retarded	• In the long run, a child is at greater risk of being judged retarded when he or she does not have the ability to adequately express him/herself. Teachers and parents often judge a child with communication impairments as socially and cognitively less capable than peers. This results in lowered expectations and frequently decreased academic achievement (Rice 1993). AAC may help in reducing this discrepancy. • A child with a communication impairment is at risk for learned helplessness. Because adults do not expect the child to inform them of his or her needs and wants, they anticipate, and often misinterpret, the child's needs. As a result, the child may relinquish any attempt to make his or her desires known and become extremely passive. AAC provides the means for the child to make choices and indicate desires and dislikes. In fact, giving the child more control over the environment is often one of the first goals of a communication program (Schweigert & Rowland, 1992; Van Tatenhove, 1987).

Excerpted from:

- AAC Institute http://www.aacinstitute.org/Resources/ParentsCorner/2006February.html
- Yaack http://aac.unl.edu/yaack/b1.html and http://aac.unl.edu/yaack/b2.html

Software Solutions

Do you wonder if one of your students might be able to use a more sophisticated device? Are you not sure which language system would work best with them? Do you want an inexpensive way to assess the different language systems? You may want to download the various software from the vendors for a FREE short term trial.

- **Dynavox V** – contact Shawn McCullough, Ohio Rep for a demo disk at Shawn.mccullough@dynavoxtech.com
- **Vantage PASS software** – available for download from http://www.prentrom.com/component/option,com_docman/Itemid,108/task,cat_view/gid,77/
- **VS Communicator** – contact Dan Lipka, Ohio Rep for a demo disk at Dan.Lipka@tobiiati.com

You could also create your own and organize them similarly to the various software titles. The easiest way is to use your **Boardmaker Plus**. First you make a board like you would with Boardmaker, then just double click on the cell and decide what you want it to do (speak, go to another board, etc..). You can do just about anything except text-to-speech with just your Boardmaker Plus. Boardmaker Plus now has a **player version** which is just $125 and lately there have been some specials for much cheaper. This allows you to play activities or board sets that have been developed on the full blown Boardmaker Plus version. They also have a free trial copy of the player that you can download from http://www.mayer-johnson.com/ProdDesc.aspx?SKU=M1MJ340.

You could also use Powerpoint to create a dynamic communication device by using action buttons (insert to shapes, draw a button, Click on Action in the Links group, and then hyperlink it to the page you want). Remember you have to create your page before you can link it to the page.

If you need help with either of these adaptations please contact Deb McGraw at 674-4230.

Funding Solutions

The true purpose of the AT consortium equipment is for you to trial various devices to find the best fit for each student. If you feel that the equipment is a good match to your students needs, we really should look at funding sources so that the student can own their own device. Currently in Ohio there are the following funding sources available:

- **Medicaid** – if the family meets the income eligibility limits, they would have Medicaid as their insurance carrier
- **Medicaid Through an I/O Waiver**– if the student's family does not meet the income eligibility limits, but the student is MRDD eligible. Their MRDD service facilitator can help them get on the list for an I/O Waiver. It is very important to get on this list as soon as possible, as sometimes the waiting list can be long.
- **Family Resources** – if the student is MRDD eligible and resides in their home environment. Contact your MRDD Facilitator for more information
- **Community Service Organizations** – i.e. Kiwanis, Lions Club, Motorcycle groups, etc…)
- **Bureau of Vocational Rehabilitation/ Rehabilitation Services Commission** – if the AT is critical to the students or adults level of success in the work environment.
- **Parents private insurance** – only if they request your help in accessing it.
- **Low Interest Loans** through the State of Ohio Treasurers office through 5/3rd Bank. There are no loan origination fees or required minimum/maximum income levels. For more information visit http://www.atohio.org/lilp.html.

Hardware Solutions

Question:

Do you have a cheatsheet of websites for communication device manufacturers?

Answer: Yes, see next page.

If you have some of the AT consortium equipment that you are no longer using, could you please return it by calling Deb McGraw at 674-4230 and arranging for a pickup. For the new year – please check those cabinets and drawers and return equipment you aren't using so that another district can use it. Thank you!!

Vendor	Website/Phone number	Devices
Ablenet	http://www.ablenetinc.com/ 800-832-8697	Big Mack's, Step by steps, Italks, Supertalkers, Trac Talks, etc…
Adamlab	www.adamlab.com 248-362-9603	SuperHawk, Hawk, LightHawk Communication Devices
Adaptivation	http://www.adaptivation.com/ 800-723-2783	VoicePal Max, Sequencer, Chipper, FreeHand, FreeSwitch, Pal Pads and Flexible Switches
AMDI	http://www.amdi.net/ 888-353-2634	Techtalk, Techspeak, SmartSpeak, Partner 4 , Tech Touch and more
Tobii/ATI	http://www.assistivetech.com 800-79309227	Mercury (SE), Mini Merc Communication Devices, and a new My Tobii P10 eye gaze system, VS Communicator software
Attainment	http://www.attainmentcompany.com/ 800-327-4269	Go Talks, Talking Picture Frames
Aug Resources	http://www.augresources.com/ 877-471-1863	light/low tech resources such as book extenders (Velcro surface), Velcro boards, communication books/boards and more.
Blink Twice	http://www.blink-twice.com/ 877-blink-11	Tango
Cyrano	http://www.cyranocommunicator.com/ 800-268-6070	Cyrano
Dynavox	www.dynavoxtech.com 800-344-1778	Dynavox V, M3, Palmtop 3
Enabling Devices	http://enablingdevices.com/catalog 800-832-8697	7 Level Commun-icators, Commun-ication Builders, Cheaptalks, Hiptalks, Say It Play It's, etc…
Eyebox Tools	www.eyeboxtoolsinc.com 612-743-5345	Lots of low tech visual systems for communication, behavior and more
Forbes Rehab Services	http://www.frs-solutions.com/ 888-884-2190	ComLink,Tellus 3+, Allora and more
Great Talking Box	http://greattalkingbox.com/ 877-275-4482	ETalk, Easy Talk, Digicom
Gus	www.gusinc.com 360-715-8580	Gus software on various palmtop and other computers
Icontalk (Barbara Bloomfield)	http://www.icontalk.com/index.html 845-294-3327	Super symbols and more low tech systems
Mayer Johnson	www.mayerjohnson.com 800-588-4548	Dynavox products and Speaking Dynamically Pro
Object Symbol	www.objectsymbol.com 888-794-3976	Lots of real life objects for object symbol systems
Prentke Romich	www.prentrom.com 800-261984	Springboard, Vantage Lite, ECO and more.
Saltillo	http://www.saltillo.com/ 800-382-8622	Bluebird, Cardinal, Chat PC, Chat Box and more
Words Plus	http://www.words-plus.com/ 800-869-8521	Tuff talker, Freedom Toughbook, MessageMate, Say it SAM and more
Zygo	http://www.zygo-usa.com/ 800-234-6006	Macaw, Dubby II, Polytablet, and more

Website Solutions

Question:

I heard there was going to be a new website where teachers could share materials they've created with Boardmaker and other software. Do you know the web address?

Answer:

Yes, in mid-November, Mayer-Johnson sponsored a new website at www.adaptedlearning.com . You can register for a free account. You will be able to search for learning materials based on grade level, categories and keywords. **Anyone can upload their activity boards, worksheets, schedules, books, writing activities, games and more. You can then access them at any location that you can get to the internet**. There is no longer a need to carry them around with you or back them up. It will show a thumb-nail picture of the activity to help you decide what you want to download. It is an opportunity to network with teachers in the same grade level and where challenges, ideas and solutions can be shared publically or privately. You will also **find related articles, tips, links and expert advice on challenges you may have**.

Question:

What is new on the AT website?

Answer:

Now you can get to it from the HCESC (www.hcesc.org) main page. First click on **"what we do"** then on the left side where it says **CRES**. That will take you to a page with regional services, scroll down to find the AT consortium. You will still need the user name and password. If you aren't sure of it – call Deb McGraw at 674-4230. New items include:

- Word family resources (Resources-Ready Made Materials to Literacy)
- Boardmaker Plus activities (Resources-Ready-Made Materials to Boardmaker to Boardmaker Plus)
- Smart sheet on Equation Editor in Microsoft Word 2007 (Tips and Tricks – to software-Microsoft)
- Smart sheet on Dragon Naturally Speaking version 9 (Tips and Tricks – to Software – Dragon)
- Where to get loaner devices (Resources – AT Resources)
- Ohio Vendor Representatives (Resources – AT Resources)
- Powerpoint Book (Resources – you MUST own the book to use these powerpoints however)
- Language sample boards (Resources-Ready Made Materials to Communication Boards)-COMING SOON

Professional Development Solutions

Date	Title	Place	Registration
12/16/2008	Vantage/Vanguard (9:00 a.m. - 3:30 p.m.)	CRES	800-848-8008
1/08/2009	Tech Center Open House (4:00 p.m. - 8:00 p.m.)	HCESC	www.hcesc.org
1/08/2009	DynaVox Plan for Success/Getting Started (9:00 a.m. - 12:00 p.m.)	CRES	www.dynavoxtech.com
2/05/2009	Tech Center Open House (4:00 p.m. - 8:00 p.m.)	HCESC	www.hcesc.org
2/17/2009	PRC - Introduction to ECO (9:00 a.m. - 3:30 p.m.)	CRES	800-848-8008
3/05/2009	Tech Center Open House (4:00 p.m. - 8:00 p.m.)	HCESC	www.hcesc.org
3/13/2009	DynaVox Advanced Training (9:00 a.m. - 12:00 p.m.)	CRES	www.dynavoxtech.com
3/18/2009	Vantage/Vanguard (9:00 a.m. - 3:30 p.m.)	CRES	800-848-8008
3/19.2009	Advanced Features of PRC Devices (9:00 a.m. - 3:30 p.m.)	CRES	800-848-8008
4/02/2009	Tech Center Open House (4:00 p.m. - 8:00 p.m.)	HCESC	www.hcesc.org
5/05/2009	Vantage/Vanguard (9:00 a.m. - 3:30 p.m.)	CRES	800-848-8008
5/06/2009	Advanced Features of PRC Devices (9:00 a.m. - 3:30 p.m.)	CRES	800-848-8008

Online Assistive Technology Professional Development, training and webinars:

Blink Twice - http://www.blink-twice.com/tango/training.html

CITEd Learn Center - http://www.cited.org/index.aspx?page_id=69

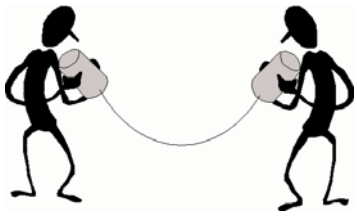
Don Johnston Company - http://www.donjohnston.com/prof_services/VIP.html

DynaVox - http://www.dynavoxtech.com/training/online/

Mayer-Johnson - http://www.mayer-johnson.com/training/online.aspx

Prentke Romich Company - http://www.prentrom.com/training

Past Issues of Solutions on Communication:



Winter 2007

- *How To Get Kids Initiating And Engaging In Conversation: Instead Of Being Responders*
- *Most Frequently used Words according to Elder 1992*
- *Sample Word Power Vocabulary Page*
- *Sample 32 Cell Overlay with Core Words*
- *Partner Assisted Communication Strategies*
- *What is Semantic Compaction?*
- *Communication Scripts for Sequencing Devices*
- *Clarification Strategies*
- *Communication Function Checklist*
- *Web based Vocabulary Word Lists*
- *Boardmaker – Putting multiple communication device overlays in one file*
- *Boardmaker – Downloading new Premade Grids*
- *Boardmaker Plus*
- *Low Tech Communication Devices*

Fall 2004

- *Communicative Competence*
- *Techniques to Enhance Communication*
- *Integrating AAC into the Classroom Curriculum*
- *Sequenced Social Script: The Key to Interactive Communication*
- *Literacy Learning and Augmentative Communication: Practical Strategies for Reading and Writing Instruction*
- *Post it Note prompts of what to ask the ACD user*
- *Home/School communication button*
- *Assessment Guidelines*
- *Boardmaker – no pictures*
- *Dynavox product calibration*

Spring 2003

- *What to put on the communication device*
- *Core Vocabulary*
- *Clarification Strategy – Topic Boards*
- *Chat/Social Pages – What to include*
- *Step by Step programming levels*
- *Powertalk for Powerpoint to make it talk*
- *Vocabulary Script Builder*
- *Dynamyte – transferring pages using the Pour feature, Speak message/label, Changing the volume*
- *Word Power*
- *Powerpoint – customizing your own toolbar*
- *Recordable Photo Albums*

Check out the materials on the HCESC AT Website:

http://kb.hcesc.org/sites/assistivetech