

Building and utilizing an AAC evaluation toolkit and process

By Libby Rush and Celeste Helling

From the novice professional to the most experienced clinician, identifying and utilizing tools for Augmentative and Alternative Communication (AAC) assessment can be a challenge. Within the field of augmentative and alternative communication, there has been a lack of systematic assessment protocols. Evaluation procedures vary widely from agency to agency. Many of the commercial protocols target only the most frequently encountered features of a hypothetical AAC user, thus not capturing the uniqueness of each individual. As a result, most professionals find themselves searching for and employing non-standardized tools and techniques in the evaluation process. These limitations became very apparent when the North Carolina Assistive Technology Program (NCATP) attempted to meet a critical need for AAC evaluations statewide.

Within the recent past, North Carolina had experienced significant reduction in assessment resources. Reorganizations within several state agencies had resulted in a change of focus with an 85 percent reduction in access to AAC evaluation. During 2004, NCATP received 2,419 requests for assistance with AAC while the public schools estimated that 750 children required immediate assessment. In order to improve the reach of services within the state of North Carolina, the state assistive technology program devised a plan to broaden the scope

of services. A major component of the design entailed the provision of a variety of assistive technology (AT) evaluations, especially AAC assessments.

Realizing fully that successful use of augmentative communication starts with assessment, it became the task of NCATP to establish quality AAC assessment services. The NCATP network of statewide centers and programs provide AT assistance to persons of all ages and abilities. Assistive Technology Labs are strategically located throughout the state and offer equipment loans, consultation and technical assistance services. This network of AT centers provide regional access points for both consumers, families and professionals. To develop and establish the AAC Evaluation Program, an AAC consultant was engaged.

The initial focus of the program was placed on one of the newest AT labs and on an older center where there had been frequent turn over in Assistive Technology Consultants. Two immediate needs became apparent:

1. identifying equipment required for testing persons with a wide diversity of communication issues, disabilities and ages, and
2. determining the best practices for assessment procedures.

Thus, to address the need for systematic evaluation procedures, a toolkit for AAC evaluation was developed. The toolkit was based on the premise that there are three domains of information needed to

provide quality AAC evaluation. The three areas include knowledge about AAC devices/systems, knowledge about the client, and knowledge about best practices in AAC intervention. To assist in gaining insight about devices and organizing that information, a protocol for analyzing communication aids was devised. Long and short versions were developed and found to be objective and consistent methods for appraising devices. Resources were identified that pinpointed functions of AAC and the possible devices or strategies that might be utilized to test those functions. To gather needed information about the potential AAC user, evaluation procedures, from pre-service questionnaires to decision making processes, were developed. Finally, to assure that the principles of evidence-based practice were integrated with the practitioners' expertise and consumers' preferences, a variety of professional resources were made available.

As the evaluation process was developed, there were several considerations that directed the framework for building the toolkit.

- Issues in AAC assessment are complex and often teams over evaluate
- Testing places time and energy demands on the potential users and others, which can be counter-productive
- However incomplete assessment can lead to erroneous outcomes

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- Use pre-evaluation questionnaires and results from previous tests to gain information

- Testing can be tiring – be prepared and have materials and equipment readily available

- Make a video to share with team members

- Don't test what is not needed

- Be transdisciplinary – evaluate and observe with other team members so testing is not unnecessarily duplicated

- Evaluate the environment as well as the potential user in the daily environment

- Focus on what the client can do, not what he can't do

- Provide immediate written feedback

The assessment process attempts to answer the “who, what, where, when and why” of AAC. The “who” discloses information about the user and potential communication partners. The “what” identifies the goal of assessment. The “where” and “when” show what settings are best for testing and that evaluation is more than a one time occurrence. The “why” reveals the most effective communication system possible and insight into implementation strategies. The three major clinical areas of consideration by many experts in the field of AAC assessment are considered to be linguistic skill, sensory/perceptual capability, and motor access.

The goal of linguistic evaluation is to identify AAC techniques and strategies and select types of symbol sets to be utilized. Often, this information can be obtained through chart review, previous assessments and caregiver reports, and thus, time need not be taken to retest for this information. When assessing linguistic skills, the major components include cognition, symbol assessment, language skills, and literacy. Evaluation of cognition examines how an individual perceives the world and how he/she might use communication within his/her understanding. Symbol assessment examines how an individual can communicate with symbols and possible symbol types. Assessment of language skills examines the continuum of function from usage of single word vocabulary to complex language structures. Evaluation of literacy examines concepts of print and reading, spelling and writing skills.

The goal of sensory/perceptual assessment is to determine size, type, and placement of symbols and to identify language



Figure 1: Sets of symbols for both adults and children were made, starting with inexpensive objects, making digital photos of each of the objects and printing out graphic representations of the objects.

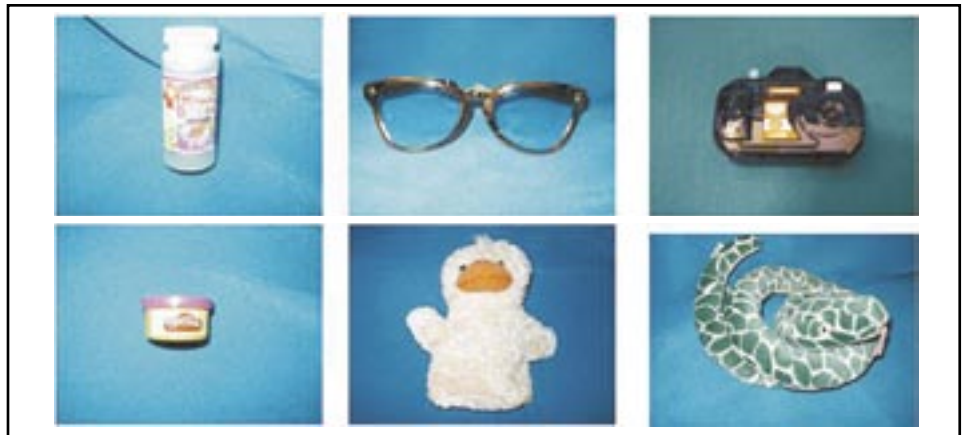


Figure 2: Displays boards were made by gluing Velcro sensitive fabric to large cutting boards or to the back of the dry erase board.



Figure 3: A variety of sequencers were available in the different Assistive Technology labs. Included were step communicators from Enabling Devices, Adaptations, AbleNet and AMDI. These devices could be used for assessing potential for single message use as well as communication exchanges.

input and output options. Areas to be addressed include vision acuity, visual field, oculomotor functioning, light sensitivity, color perception, and hearing. Much of this information can be obtained through prior assessments, medical history and caregiver reports.

The goal of physical access assessment is to identify optimal seating and positioning, as well as motor technique for access. Motor control is necessary for virtually every type of assistive technology. Optimizing motor control will generally have a direct impact on optimizing access to assistive technology. Proper positioning has a direct impact on motor control. Therefore, proper positioning is necessary for optimizing access to assistive technology. Areas to be considered are:

- Range: What is the client's usable range (area and orientation)?
- Resolution: How accurate is the movement?
- Consistency: Can the movement be made reliably and repeatedly?
- Strength: How much force is needed to activate the device?
- Speed: How fast can user activate and release input device?

The preassessment preparation sets the tone for the evaluation itself, but most critically, it can save valuable time and resources. Gathering adequate information prior to the formal evaluation assures that the most effective strategies and tools will be identified for the actual sessions. As the framework for the process was developed, it became apparent that mechanisms were needed that supported gathering comprehensive information prior to beginning an evaluation. Since one of the goals of the project was statewide implementation, all procedures and documentation needed to be consistent



Figure 5: The Auditory Choice Making Communicator by Enabling Devices was considered a cost effective way to assess auditory scanning skills.

and standardized. A survey of existing tools revealed none that were efficient in meeting the needs of the program. Thus several pre-evaluation questionnaires were developed. Copies for review and use are available at no charge at <www.ncatp.org>.

The Pre-Service Questionnaire was designed to be completed by staff to gain

information when any type of assistive technology evaluation was requested. This questionnaire solicits cursory information about the client and permits entry of that data into existing data systems. The Pre-Evaluation Questionnaire is sent to the referral source for completion prior to assessment. This AT evaluation form requires that the



Figure 4: The versatility of a static display voice output device that has the option of being configured into one or multiple messages was considered essential for a basic diagnostic kit. Pictured here are the SuperTalker by AbleNet and the 7 Level Communication Builder by Enabling Devices.



Figure 6: Switch activated devices were included to assess cause and effect, as well as serving as positive reinforcement during the assessment process.



Figure 7: A variety of switches was considered essential to determine the type of access needed. Pictured here are several from Tash.



Figure 8: A switch interface was necessary since a portable computer was used to address possible use of dynamic display. Shown here are the Don Johnston Switch Interface Pro 5.0, Crick USB Switch Interface and Wivik USB Switch Adaptor Box from Prentke Romich Company.



Figure 9: To evaluate access, a switch mounting system was included in each kit. The Mother's Third Arm by Enabling Devices was an inexpensive option while the Slim Armstrong from AbleNet was a durable choice.

referring individual specify the reason for the referral, whether it be AAC, computer access, low vision, etc., and requests copies of pertinent medical, educational and vocational reports.

Finally, the Communication Related Issues Questionnaire was developed to collect information about current language, literacy and communication skills. It was specifically intended to capture the information across disability and lifespan. Designed to be completed by a professional or a caregiver, it addresses both symbolic and non symbolic communication behaviors.

Each of the centers across the state had a different inventory of devices and resources to utilize during the assessment process. To assure that there was a comprehensive array of assessment tools available for each lab, the components of a basic toolkit were identified. It was essential to identify cost effective tools for all aspects of the assessment process. Whenever possible, equipment was chosen that could serve multiple purposes. For example, a sequencer was selected rather than a single message voice output device because it could function as a single message device as well as a step communicator. Likewise, a progressive communicator with static display was chosen because it could be configured to utilize single or multiple messages. Rather than investing in a dynamic display communication system, it was determined that utilizing an existing portable computer with a touch screen would be cost effective, as well as allowing versatility in the types of software available for assessment. To aid in the selection of assessment tools, both the aforementioned long and short protocols for analyzing communication aids were used. Those forms can also be found at <www.ncatp.org>. Additionally, appropriate objects were selected for either adults or children to be added to each toolkit. Digital photographs and symbolic representations of those objects were used to create a library of different symbol sets in varying sizes and contrasts. Each toolkit consisted of:

- Dry erase board
- Objects, photos and symbols (adults and juvenile) (Figure 1)
- Display board with Velcro sensitive fabric (Figure 2)
- Sequencer (Figure 3)
- Progressive communicator (Figure 4)
- Auditory choice making communicator (Figure 5)

- Switch activated devices (toy or fan or vibrating pillow) (Figure 6)
- Battery adaptor
- Array of switches (Figure 7)
- Switch interface (Figure 8)
- Switch mounting system (Figure 9)
- Laptop computer or tablet computer (Figure 10)
- Touch Screen (Figure 10)
- Dynamic display software
- Downloaded AAC software demos
- PowerPoint

The Evaluation Notes Form was utilized to assure that information was recorded in an organized and conventional manner. The Evaluation Consult Summary form was developed to share information with those persons present and participating in the evaluation process. A copy of this form is shared with each participant at the end of each session and serves as a basis for assuring that everyone understood what was done during the session and what was to happen next. It also served as a resource for writing the final report. These forms can also be found at <www.ncatp.org>.

As part of the decision making process, the professionals drew upon their clinical expertise, a variety of professional resources and the values of the potential AAC user and their families. One approach utilized was feature matching, which involves selecting device features to meet user needs. The forms for analyzing and reviewing communication devices were found to be helpful during this process. A number of professional resources were also identified to aid in making recommendations for AAC systems, determining implementation strategies, and identifying funding options. Those included:

- <www.aac institute.org>
- <www.aac fundinghelp.com>

- <www.aacPartners.com>
- <www.aacproducts.org>
- <www.asha.org>
- <www.assistivetech.com>
- <www.cms.hhs.gov/medicare>
- <www.cms.hhs.gov/states/default.asp>
- <www.dynavoxsys.com>
- <www.prentrom.com>
- <www.rerc-aac.com>
- <www.words-plus.com>
- <www.zygo.com>

In North Carolina, an AAC toolkit helped to standardize the AAC service delivery model for the various assistive technology centers and programs within NCATP. It aided in maximizing resources when establishing a new lab, updating older centers and maintaining other centers. Selecting the most effective tools and learning to use them effectively during evaluations lead to mastering the assessment process. With the complexity of AAC evaluation, the diversity of those needing assessment and the overwhelming choices of devices and possible systems, the AAC toolkit and process has resulted in working smarter and faster.

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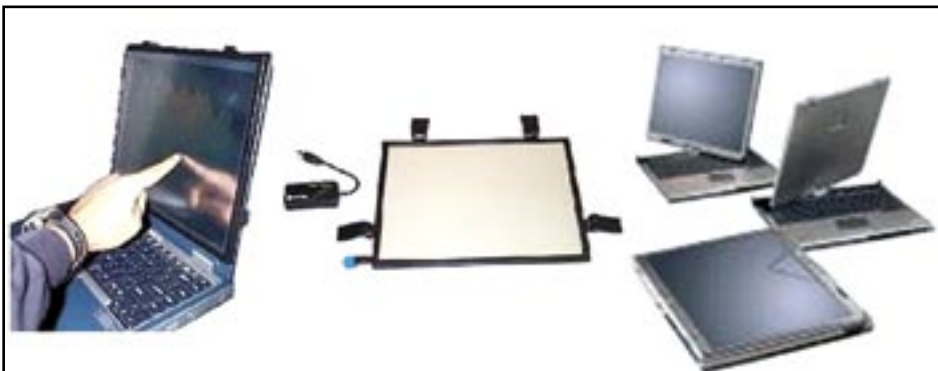


Figure 10: A portable computer with some type of touch access was included in each kit. A variety of software was downloaded that supports assessment of many aspects of AAC. The list of Web sites at the end of the accompanying article includes some of those resources.