Augmentative Communication News

November, 1991 Vol. 4, No.6

INSIDE THIS ISSUE . . .

UPFRONT

I remember, ten years ago, watching Charles Diggs *(than Executive Director of the National Association for Hearing & Speech Action & now Director of Consumer Affairs at the American Speech-Language Hearing Association)*, as he stood on a chair, waved his arms, and shouted at an audience of speech language pathologists/audiologists, "I absolve you. It is okay to make money." I was stunned! What did money have to do with caring about people and trying to help them communicate, I gasped? He continued, "I know what you're thinking, and you're wrong. Fiscal considerations have EVERYTHING to do with quality service delivery. Stop being so naive!" He was right!

Economics is a backdrop against which we live our lives, do our jobs, and make decisions. Although money is not something most consumers, clinicians, educators, and engineers are comfortable talking about...at least not in public, it's a reality we can not afford to ignore. There is a world-wide "**recession,**" and it is influencing the delivery of services to persons with severe communication impairments.

This issue is about the survival of centers specializing in AAC:

- Hospitals and rehabilitation centers are "tightening their belts." Some are closing.
- School district are in crisis. Note: One I consult to declared bankruptcy last spring!
- Agencies and organizations mandated to provide services and equipment aren't doing it because they have "no money."

Delivering assistive technology, and in particular, *(cont. on pg. 2)*

Clinical News

At Risk: AAC Centers of Excellence

Centers specializing in the area of augmentative and alternative communication (AAC) have played a critical role in the delivery of assistive technology and related services since the 1970s. Whereas Centers are no longer perceived as places where all AAC services can or should occur, they are uniquely prepared to deliver high quality, sophisticated services because they:

- employ experts from multiple disciplines with a high level of knowledge and skill,
- maintain state-of-the-art equipment,
- conduct research and in some cases, customize, design, and even develop products,
- assume responsibility for training families, clinicians and educators,
- increase public awareness,
- provide mechanisms for information exchange, and
- establish and maintain collaborative relationships with manufacturers.

At a time when the laws and public policies of many nations have extended the rights of persons with disabilities and have mandated access to assistive technology and related services, one would expect to see new assistive technology centers emerging. This is not the case. Instead, governments, educational agencies, health-care institutions, and other funding sources are struggling with cutbacks and facing deficits. Institutions are hiring administrators who know about business and financial planning, but who often have no understanding or appreciation of *(continued on page 2)*

Augmentative Communication News

(from Upfront, page 1)

AAC services, is not a Fortune 500 business. In fact, the "profit margins" look pretty bad, even when compared to traditional rehabilitation approaches. The bottom line? AAC services require a high level of expertise, expensive equipment, and lots of time. We can not afford to be naive. The cost to individuals, families, and society of not doing what AAC Centers are equipped to do can be devastating. In **Clinical News**, Directors of several well-established programs in North America share experiences, insights and suggestions. **Governmental, For Consumers** and **Equipment** sections consider related issues. **University/Research** highlights the Language Research Center in Georgia.

If you registered for **1991 ASHA CEUs**, your 1991 examination is enclosed. You must complete and return it by January 31, 1992. For those who wish to register for **1992 CEUs**, be aware that ASHA (the American Speech-Language-Hearing Association) now requires you pay a yearly administrative fee of $15 US (ASHA members) or $25 (nonmembers). Our fee for 1992 CEUs is $4 US. If you are confused, don't worry. You have time to work it out, and we'll be happy to help! Remember, the Hotline number is (408) 649-3050.

The holiday season is upon us . . . a time to rest, relax, sip some spirits, bake cookies, and enjoy family and friends! A time to forget about the Recession and look forward to the future. Best wishes and cheers!

Sarah Blackstone, Ph.D.

Clinical News (cont. from page 1)

rehabilitation, never mind AAC. Looking at staff productivity, i.e., number of direct patient contact hours, they may view AAC services as a liability. Even facilities that continue to place a value on innovation and respect expertise are treading water. Unfortunately, well-equipped centers quickly become outdated facilities if little time and money is set aside for learning and equipment. As a result, some institutions are no longer perceived as valuing the people they serve, specialty programs, or professionals with expertise. Rather they seem only to value the bottom line: money.

The following case examples are offered as samples of how five well-established programs and centers of excellence are coping with today's fiscal realities in North America. Although all are located in hospitals, don't stop reading if you work in a school, nursing home, etc. or live somewhere else. You face similar issues.

Case #1

Several months ago, Pamela Andersen suggested ACN tackle this topic. She had a story to tell and felt it might be helpful to others. As Director of the Rehabilitation Technology Program (RTP) at Penrose Hospital, a non-profit, Catholic hospital in Colorado, Pam received the RTPs status reports from the hospital. For six years billings for RTP services had shown a $50-60,000 yearly profit (on paper). Program

"I sold the AAC program on its humanitarian value 8 years ago. Today that doesn't cut it anymore."

statistics revealed 30% of staff time was spent on evaluations, 60% on treatment, and 10% on consultation. Their community-based treatment model was carried out in schools, nursing homes, group homes, etc. Staff regularly attended conferences, did some research, and remained active in the AAC community.

The bubble burst 18 months ago when the hospital calculated monies actually collected from payers for RTP services. They faced a $10,000 deficit, due in large part to the percentage of patients funded by Medicaid. The hospital was being reimbursed only 44% (i.e., 55% of 80%) of what it had billed. Anderson said "We were benefitting people, but not the hospital. We needed to adjust what we were doing, and how we were doing it to stay in business."

"We were benefitting people but not the hospital."

The past 18 months have been "difficult." But, today, the RTP is breaking even and headed toward profitability. Changes made include:

1. Shifting how staff perceive the mission. The mission is to "empower" rather than "take care of" clients, families, and community professionals. Responsibility for treatment is being shifted to community professionals and families, and signed commitments are asked for upfront.

2. Shifting expectations. Staff are more realistic. They lay out treatment plans in small steps. They recommend sophisticated equipment only if adequate support is in place. Also, when no progress is made or minimal interest is shown, staff are learning to "let it go," i.e, focus energies elsewhere.

3. Reassigning staff. Eighteen months ago the RTP had 7 FTE (full time equivalent) staff; today there are 3 FTEs. Staff previously dedicated to the RTP are now working in other parts of the hospital (trauma recovery, neurological disorders), as consultants. This also spreads the expertise around and sets up an expectation for cross training.

4. Finding reliable funding. More and better funding sources are being identified (i.e., vocational rehabilitation, auto insurance, private insurance).Cost benefit analyses are being made available to payers.

5. Seeking a patient mix. The program actively seeks a mix of patients and funding sources. For example, they see individuals with spinal cord injury, cerebral palsy, carpal tunnel syndrome, and so on.

Andersen feels the changes have not compromised the quality of care. In fact, the emphasis on empowering consumers and the community seems to have improved outcomes for everyone at the RTP.

AUGMENTATIVE COMMUNICATION NEWS is an independent, non-membership publication.
Author, Sarah W. Blackstone, Ph.D.; Published by Sunset Enterprises,
One Surf Way, Suite #215, Monterey, CA 93940
1 Year Subscriptions: By personal check U.S.& Canada = $41 U.S.; Overseas = $52U.S.
Institutions, libraries, schools, hospitals, etc.: U.S. & Canada = $63 U.S.; Overseas = $74U.S.
Single issues $10.
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Case #2

Due north, Elaine Heaton, of the Assistive Device Service (ADS) at Glenrose Rehabilitation Hospital in Edmonton, Canada, reports a team of 5 FTEs provides services to children and adults in the areas of communication, mobility, computer access, and environmental control. Under the socialized Canadian health care system, the provincial government pays for clinical services. In Alberta, however, outside funding must be sought for AAC devices, switches, and mounting systems. Elaine feels multidisciplinary programs, like the ADS, currently have a perceived high value at Glenrose. However, internal review committees are beginning to look at

Assistive technology services are at risk.

costs more carefully; and staff cutbacks already have occurred. "Assistive technology services are at risk," says Heaton. For example, 2.8 FTEs were lost in the speech department and 1.0 FTE in the ADS. Staff are working hard to operate as efficiently as possible. They maintain a high profile and good public relations. Heaton feels a strong consumer movement and the involvement of physicians also are needed.

Case #3

In Toronto, Ontario, the Hugh MacMillan Medical Centre's Augmentative Communication Services (ACS) was established in 1979. It has clinical, educational, and research components. Penny Parnes, Director of ACS and Vice President of Professional Services at the Centre, says "we have always worked closely with our funding source, i.e., the provincial government." Although the Canadian delivery system is not "fee for services," and no money is exchanged, the Hugh MacMillan Medical Centre is "not oblivious to the costs." Neither is the government. ACS and other centers have been authorized by the provincial government to recommend equipment and provide comprehensive services. A recently funded project at ACS *(the Central Equipment Project)* is assisting programs to pool equipment. Although the assistive technology device program was due to expand to adults 2 years ago, funding considerations are delaying this.

Penny said ACS's years of experience has taught them important

The non-technical areas of vocabulary selection, training partners, integrating systems into educational, vocational, and community settings are the most time consuming & difficult components of AAC services.

lessons:

- 1) there is no clear line between assessment and intervention.
- 2) the non-technical areas of vocabulary selection, training partners, and integrating systems into educational, vocational and community settings are the most time consuming and difficult components of AAC services.
- 3) successful intervention depends on involvement of skilled partners in the community.
- 4) the types of support needed by individuals from ACS changes over time, but is ongoing.

Reflecting this information and in order to be efficient and effective, ACS revised its delivery model two years ago. The efficacy of the model described below is being evaluated.

1. Today, when an inquiry is made, the initial intake requires the involvement of a community-based team.

2. The family and community-based professionals must apply to ACS each year for specific services the following year. Applications specify the composition of the community team and strengths available within the community.

3. ACS staff meet to determine how best to serve the needs of those requesting services during the year. The level of services can vary from none, to minimal consultation, to intense ongoing intervention and training.

4. Once a level of services is agreed upon, ACS staff collaborates with the community team to set up goals and plan the intervention program for the year.

5. The program is implemented throughout the year in the community. ACS staff work to empower community teams.

6. The community team evaluates the effectiveness of ACS services.

Case #4

Back in the U.S.A., we focus on another well-established program, the Communication Enhancement Center at Children's Hospital in Boston, MA. Founded in 1977 and expanding to include the Institute on Applied Technology, founded in 1988, the Center employs 15 people (speech-language pathologist, reading specialist, engineer, special educator, occupational therapist, secretary, administrator, and a director). Howard Shane, Director, says the "hospital supports the program, but we are expected to break even."

In order to survive, AAC programs must generate funds from outside of the clinical services program.

In 1985, the Center faced a growing deficit. Clinical services were so labor intensive that Shane concluded funds had to be generated from outside of the clinical services program in order for it to survive. He identified several options:

- 1. Be part of an institution that absorbs the loss
- 2. Be a vendor and sell manufacturer's equipment
- 3. Find a benefactor to provide a very large donation
- 4. Develop and sell equipment
- 5. Pursue grants from governmental agencies, from individuals, and other organizations/companies to fund specific projects.
- 6. Redefine the types of services being provided

The first option is not an option. Option #2 was tried, but dispensing AAC equipment was not a satisfactory experience. Howard, like everyone else, is still waiting for a large benefactor to make Option #3 come true. Option#4 was undertaken with success. The Institute is developing products in collaboration with Digital Equipment Corporation to adapt or develop products that can benefit individuals with disabilities. Today they provide equipment they were involved in developing. Option #5 is *(cont. on pg. 4)*

ongoing and actively pursued. An example is their Mobile Van funded and maintained by a local organization. They have expanded clinical services to provide a range of assistive technology services to both adults and children (Option #6).

Case #5

The Center for Applied Rehabilitation Technology (CART) at Rancho Los Amigos Medical Center in Los Angeles was established as the result of a generous donation of nearly 2 million dollars *(Note: that's option #2)*. CART has over $450,000 worth of assistive technology. Frank DeRuyter, Director of CART, says the service delivery component includes: Resource, Information/Referral, and Assessment. Personnel costs for Resource and Information/Referral components are not easily recaptured, but can be handled by volunteers, clerical, and supportive personnel. However, personnel costs for the assessment component are high because services are provided by professionals with advanced degrees, licenses, and a high level of expertise who participate in ongoing continuing education to stay up-to-date.

The productivity statistics, level of expertise required, need for continuing education of personnel and the cost and limited shelf life for equipment are killers!

Frank can prove the delivery of assistive technology is a "money loser. . . under current provisions for funding services." He cites personnel costs, decreased productivity statistics, and the cost and limited shelf life of equipment. For example, productivity requirements in hospitals and rehabilitation centers expect therapists to bill between 5 and 6 hours of direct patient contact per day. The data show the productivity for those in CART are 18-23 percent lower than their colleagues in other areas of rehabilitation because billable time is lower. It is not because they are less productive! DeRuyter, Doyle, and Kennedy's (1990) survey results show productivity for speech-language pathologists in brain injury programs average 5.2 hours/ day for speaking patients and 4.3 hours/day for nonspeaking patients. AAC services are very labor intensive, and costs are difficult to retrieve. Frank says it is not unusual for only 55 percent of charges for a comprehensive AAC evaluation taking an average of 6 staff hours to be reimbursed at CART. A minimum of 5 hours of a speech-language pathologist's time typically is required to conduct an AAC evaluation, select a system and provide minimal training. For this, the hospital may collect as little as $88.96 from some payer sources.

DeRuyter concludes that if services for assistive technology are going to increase, funding mechanisms must be reexamined.

STRATEGIES FOR SURVIVAL

Assistive technology centers that are consumer oriented and facilitate collaboration with community-based professionals and manufacturers, are critical components of service delivery in the area of AAC. Without the leadership and continuity they provide, the field of AAC will suffer. Those interviewed concur. There is plenty of business, i.e., people need assistive technology. Although the current recession makes it a scary time to jump in, all agree it can be done. Suggestions below summarize considerations applying to programs across settings.

1. Study the market and develop collaborative partnerships. Determine who needs/wants what services. Sit down with your "customers," and devise consumer responsive models that foster independence, not dependence in your geographic area.

2. Involve decision-makers. If you are located in a hospital, you need the support of an influential physician. In school districts and government agencies, administrative support is critical. Those who don't have it, will have trouble down the road. Table I lists 6 strategies for gaining administrative support.

Table I. Tips for working with administrators

1. Introduce administrators to users & families.
2. Demonstrate complexity of services (e.g., Ask them to imagine if they had to program everything they wanted to say, even for a day, into a machine.
3. Get facts and figures. Know where staff time is going, e.g., how many hours does it take to prescribe a VOCA, etc.?
4. Produce outcome measures re: consumer satisfaction; effectiveness and efficiency of services; (See ACN, Vol 2, #3.)
5. Learn to write reports and position papers that are meaningful to managers. These aren't the same as clinical reports.
6. Be honest and upfront.

3. Decide what you can do with what you've got, and then do it with excellence. Call yourself what you are. Make sure you have the resources to do the job very, very well!

4. Study, work with, and educate payer sources. Look carefully at who is being provided with services and equipment and what potential sources of funding exist. Meet with funding agencies so they understand what AAC is and why and how a communication device can allow a person to live and work.

5. Be certain staff are committed. Then, consider carefully how best to use their expertise. Be creative in how you cut costs.

6. Specify what your overhead needs are.

- Equipment: Assistive technology programs need $50,000 minimum to get started! Additional monies are needed each year for maintenance and new equipment (e.g., $10,000). Borrowing equipment is inefficient.
- Payroll: Enough is needed to hire (and keep) experts and for administrative support.
- Continuing education. Staff must stay on the cutting edge. Allow for staff learning preferences. Some like to attend conferences; others want to stay close to home. Information sharing and

distance learning alternatives *(like ACN)* can reduce costs.

- Space: Space is needed for staff, equipment/materials, assessment, and waiting areas.

7. Be visible. Develop a plan to promote the program. Remember Centers need outside sources of funding and support (e.g., governments, benefactors, grants/contracts). Be sure to allocate time, energy, and expertise to pursuing these options.

8. Be efficient. Save time and energy by keeping information/materials on a data-base and by providing education in groups/workshops. Also to increase efficiency, use available products such as Hyper AbleData and Board Maker *(see references on page 8)*. Don't re-invent solutions . . . maintain contact with colleagues with expertise!

9. Be realistic. Define expectations upfront. Proceed slowly. Recommend equipment that can easily be supported in the community. Make sure you know the effects of your services, and how others perceive your services.

10. Plan growth carefully. Consider the financial impact of all decisions. Make decisions based on data, i.e., statistics, outcome studies. Do not make decisions that compromise quality of care.

What's in the Future?

- Moving toward a transdisciplinary approach?
- Developing mechanisms that allow supportive personnel to take over some services *(preparation for assessment, development of communication board, programming systems)*? For example, in Ontario communication disorder assistants, supervised by experts, are being trained at the community college level.
- Encouraging collaboration among government agencies that serve the same groups? One example may be school-based health clinics where families and children are provided with a range of social, health, and educational services in one place.
- Encouraging consumer societies and organizations (Amyotrophic Lateral Sclerosis Society, Spastic Society, Hear Our Voices) to consider taking on more responsibility for disseminating information, making referrals, and recycling equipment?

Stay tuned . . .

Governmental

Being proactive: Health-care rationing & assistive technology

While countries don't approach health care or education with the same set of assumptions, governments are facing similar realities and issues with regard to assistive technology services and devices.

- laws are creating a greater demand for services and equipment;
- technological options are increasing;
- governmental resources are dwindling; and
- health-care and education systems are being challenged.

For example, in the U.S., more than 20 percent of the population is not covered by health insurance. Of those who have insurance, a substantial portion are on public assistance. This means that many U.S. citizens have limited access to health care. In Canada and other countries with socialized medicine, citizens are entitled to receive health-care services and are taxed highly to accommodate costs. Even so, who receives services and the type of services delivered do vary. For example, AAC "services" can mean a prescription for equipment in one area (or for one group); and in other places (or for other groups) may mean easy access to comprehensive services and assistive technology.

Even when a high level of commitment, public laws, and a desire to deliver assistive technology services exist, delivery systems and funding mechanisms are not set up to provide technology and related services to everyone with a severe communication disorder. Nor, one might argue, should they be. Not only are there other priority areas (social, health, education) to consider, but not everyone wants or benefits from AAC.

Resources and efficiency suggest we can not make equal commitments to all issues at the same time.

We all have to establish priorities. When governmental resources become scarce, the term used for setting priorities becomes "rationing." Rationing means "a fixed portion or share and is associated with scarcity." We are hearing more and more about "health-care rationing." These discussions raise important moral and ethical issues that are difficult, at best, to deal with. However, we really do need to figure out how best to allocate available resources, i.e., who can benefit, and who gets what, under what circumstances. The AAC community can take a proactive role and work with funding agencies to:

- 1. Identify the populations for whom technology is appropriate and conduct outcome studies.
- 2. Look at alternative service delivery systems.
- 3. Look at costs in different settings. Consider a cost benefit analysis for assessment, training and delivery of technology.
- 4. Provide some standardization, i.e., establish best practice patterns given the multitude of settings. See **News** on page 8 for a step in that direction.
- 5. Identify research priorities within the AAC community and consider these from a perspective of what we should be funding.

For Consumers

One small step toward quality care

In a recent presentation to the California Governor's Committee for the Employment of Disabled Persons, DeRuyter pointed out that the delivery of assistive technology services to the disabled community is extremely inconsistent and variable. Reasons cited included:

- difficulties accessing services,
- inadequate funding for technology, and
- variation in the quality of services being provided.

DeRuyter said, "the quality of services is affected by rapidly advancing technology, a lack of knowledge on the part of professionals, a lack of communication between agencies and service providers, and consumer shopping." Let's take a closer look at "consumer shopping."

Consumer shopping means looking for what you want until you find it. *Nothing wrong with that!*

It can also mean asking a lot of professionals the same questions. *That's a good way to learn!*

However, shopping for assistive technology is not like buying a shirt or a car. You can't just go from store to store to look at all the devices and try them out. And, there's no Consumers Report to refer to or accreditation mechanisms for professionals or institutions specializing in assistive technology.

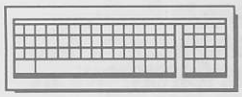
When we purchase a shirt or car, we make our own decisions about what to buy. However, when a communication device is purchased, choices are often made on the basis of recommendations from a clinician or in some cases, a manufacturer's representative, who *thinks* he/she knows what's "best."

Complaints about AAC services and tales about equipment that has been abandoned hurt the field of AAC. Every time a family, a funding agency, or a government buys something (whether it is a piece of equipment, an assessment, or training session), and it does not meet the needs or falls short of expectations, financial and human resources have been wasted. Shopping sprees for AAC services cost lots of money and take lots of time.

My belief and experience has been that people involved in AAC want to do the best they can. We want to recommend the best, i.e., right device and provide the best available service. Sometimes we do; and inevitably, sometimes we do not. Everyone makes mistakes!

Let's start encouraging those who have complaints to bring them to the attention of the agency, manufacturer, and/or professional involved. Let's give individuals, teams, and agencies, the opportunity to improve their services. Let's improve the overall perception of services in AAC. Feedback!

The consumer movement is fast becoming a dominant force and influence to governments world-wide. Let's work together! The better educated the consumer, the better AAC service delivery will become.



Equipment

Did you know that . . .?

- Many centers with an AAC orientation began in the 1970s. Today, most centers and programs offer a broad range of assistive technology services, i.e., seating, access, communication, environmental control, mobility, and assistance in educational, vocational, and recreational areas. Why? Unless every attempt is made to provide integrated services and systems, "mistakes" are inevitable.
- In established AAC programs, data reveal that low tech solutions are recommended more often than high tech devices. Reported ratios vary from 3 or 4 to 1.
- There are more than 100 AAC devices on the market. Note: See reference to Wall Chart on page 8.
- More than 1,000 new assistive technology products are introduced every year.
- The shelf life of assistive technology is approximately 3 years.
- New equipment and maintenance may cost assistive technology centers an extra $10,000 per year.
- Equipment pooling is beginning to occur. The concept is a good one and should save our limited resources, i.e., keeping track of what has been purchased and trying to use available equipment rather than buying duplicates. However, it is not yet clear to what extent equipment pools will keep costs down because of the limited shelf life of assistive technology.
- Table II displays how monies were spent for some of the assistive devices purchased by the Government of Ontario, Canada. During 1989-90, AAC devices represented only 1.7% of the total money spent, which was $77.7 million (Canadian), on assistive devices. Although the average cost per person of a communication device was higher, it was not that much higher than seating or hearing devices. Persons with severe expressive communication disorders are a low incidence population! AAC users don't cost payers so very much at all!

Table II. Comparing costs: Devices funded in Ontario, Canada (1989-90)

Assistive Technology	Total Cost	# Of People Benefitting	Average Cost per Person
AAC devices	$1.4 million	861 people	$1626
Seating devices	$28.9 million	30,000 people	$963
Hearing devices	19.1 million	52,000 people	$367

University & Research

Language Research Center
Georgia State & Emory Universities

Visitors to the Language Research Center (LRC) leave the city streets of Atlanta, Georgia and drive to a forested area. There they begin to hear noises not typical of most environments. Located on 55 acres with 5 miles of trails, the LRC was founded ten years ago by Georgia State University and the Yerkes Regional Primate Research Center at Emory University. Funded by the National Institute of Child Health & Human Development, the Center is directed by Duane M. Rumbaugh, Ph.D. Its purpose is to study language acquisition processes in great apes and humans and to benefit persons with mental retardation by applying principles and intervention strategies learned. Currently 11 great apes live at LRC, and 40 people work there.

You can talk to these animals. Many have communication boards and interact using signs and by pointing to abstract symbols. Some use voice output communication aids (VOCAs), i.e., SuperWolf.* For example, Kanzi, a pygmy chimpanzee, asked your ACN publisher to chase him, and had your publisher acting just like a monkey. Currently four major areas of investigation are underway at LRC.

1. Language Acquisition in the Chimpanzee. *Principal Investigator, Sue Savage-Rumbaugh, Ph.D.; Co-investigator, Rose A. Sevcik.* This project considers how non-human primates learn symbols. Among the things learned about chimps abilities are:

- Chimps learn abstract symbols and use them to communicate.
- Chimps learn to use symbols during natural interaction with their caregivers.
- Speech synthesis is an effective strategy during human/chimp interactions.
- Chimps use symbols to interact with other chimps.

Results also have shown the acquisition of a symbolic communication system was easier for Kanzi, a pygmy chimpanzee than for Sherman and Austin, two common chimpanzees. Kanzi had a capacity for the comprehension of speech, while Sherman and Austin did not.

2. Georgia State Mental Retardation Project. *Principal Investigator, Mary Ann Romski, Ph.D. Co-Investigator, Rose A. Sevcik.* This project adapts findings from the non-human primate research and studies how nonspeaking persons with mental retardation learn symbols and how technology can facilitate growth in the comprehension and expression of language and interaction. Work is carried out in the homes and schools of students with moderate and severe mental retardation enrolled in Clayton County schools. Articles summarizing results of this project are:

Sevcik, R.A., Romski, M.A. & Wilkinson, K. (1991). AAC symbols: Their roles in communication acquisition for persons with severe cognitive disabilities. Augmentative and Alternative Communication, 7, 1-10.

Romski, M.A., & Sevcik, R. A. (1991). Augmenting language development in children with severe mental retardation. In S. Warren & J. Reichle (Eds.), Causes and effects of communication and language intervention. Baltimore, MD: Paul Brookes.

Romski, M. A., Sevcik, R. A., Reumann, R., & Pate, J.L. (1989). Youngsters with moderate or severe retardation and severe spoken language impairments I: Extant Communicative patterns. JSHD, 54, 66-373.

Two outgrowths of this work are:

A. Project FACTT (Facilitating Augmentative Communication Through Technology). *Co-Directors, Mary Ann Romski, Ph.D. and Vicki Collier.* A joint project with Clayton County Schools, FACTT provides augmented language services to school-age children with moderate and severe mental retardation. Implementation practices are based on these principles:

- 1. Augmented language learning can occur during natural communicative interaction between children and their partners.
- 2. For at least some children, comprehension may play a critical role in the augmented language learning process.
- 3. Electronic speech output devices may provide an interface between a child and the auditory world
- 4. Integration of an electronic speech output device within the child's natural extant communication skills facilitates a multimodal system for communication
- 5. Augmented language learning provides the child with an entry point to related symbolic skills.

FACTT services extend beyond the school program to ensure transition to supported employment, family and community settings.

B. Georgia AAC Technical Assistance Project. *Kim Hartsell, Project Manager; Mary Ann Romski, Consultant.* A cooperative effort among the State Department of Education, the Clayton County schools, and the LRC, this project is designed to give technical assistance in the area of AAC throughout Georgia's schools.

3. Cognitive Project (Common chimpanzee and Pygmy chimpanzee). *Principal Investigator, Duane M. Rumbaugh, Ph.D.* This project studies cognitive processes (such as counting and sequencing skills) and their requisites using joystick-linked computer technology. Results to date suggest that with experience chimps acquire some aspects of numerical skills.

4. Neuropsychology Project *Principal Investigator, Robin Morris, Ph.D.* This project crosses apes and human subject populations and is designed to study underlying brain-behavior relationships in the symbol learning process. Using adapted forms of neuropsychological methodologies, this project measures in part changes in performance with symbol experience. In addition to studies of laterality and memory, auditory evoked potential (AEP) studies have revealed that children learning language through AAC systems evidence different AEP patterns for meaningful and nonmeaningful symbols.

Molfese, D., Morris, R., & Romski, M.A. (1990). Semantic discrimination in nonspeaking youngsters with moderate or severe retardation: Electrophysiological correlates. Brain and Language, 38, 61-74.

Opportunities for study.

The principal investigators of the LRC serve as faculty in the Biology, Communication and Psychology Departments at Georgia State University. An AAC course is available to graduate students. Opportunities for stipends are available for research assistants who specialize in the area of language development.

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*SuperWolf.Available from ADAMLAB, 33500 Van Born Road, Wayne, MI 48184.

RESOURCES

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News

The National Institute on Disability and Rehabilitation Research (NIDRR) has contracted with Conwal Incorporated to develop a *Consensus Validation Project on AAC Intervention.* David Yoder, Ph.D., is Chairman of the Consensus Panel of Experts. The Panel will develop consensus statements in response to these questions:

- 1) What is AAC and who can benefit?
- 2) What are the nature and scope of AAC interventions? What are the essential components?
- 3) What relationships should exist among consumers, "family," service providers, manufacturers, researchers, and funding sources? How can these relationships be used to achieve effective outcomes?
- 4) What are the effective consumer and societal outcomes and benefits that can be expected from AAC interventions?
- 5) What is the relationship of AAC to expressive and receptive communication processes?
- 6) What are the research and education issues in AAC needing to be addressed?

Public hearings will be held in Washington, D.C. in March, 1992 to assist the Consensus Panel. For more information or to provide testimony, contact Dr. Carolyn Vash, Conwal, Inc., 520 N. Washington St., Suite 100, Falls Church, VA 22046. (703) 536-3200.

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Kraat, A. & Kogut, M. (1991). Wallchart of commercially available communication aids. A comprehensive resource.
Available from Applied Science and Engineering Laboratories, A.I. duPont Institute/University of Delaware, P.O. Box 269, 1600 Rockland Rd., Wilmington, DE 19899. 1 copy $5US; 10 copies $40 US

Hyper-ABLDATA. A database of thousands of products (including pictures) and company information. MacIntosh version available. $50US.
Contact Trace Research and Development Center, University of Wisconsin-Madison, 1500 Highland Avenue, Madison, WI 53705-2280.

Boardmaker. Using a MacIntosh computer, an object oriented drawing program (MacDraw or SuperaPaint) and PictureBase, clinicians can create professional looking overlays using the Picture Communication Symbols library. They can change symbol size, save them, and print overlays. Boardmaker $299, MacDraw $170, PictureBase $79.
Available from Mayer-Johnson Company, P.O. Box 1579, Solano Beach, CA 92075-1579.

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