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Augmentative Communication, Inc.

Augmentative Communication News

May, 1988 Vol. 1, No. 2

INSIDE THIS ISSUE . . .

UPFRONT

Welcome to Augmentative Communication News! This issue features light pointing and light pointers. During a Hotline conversation with Pamela Mathy-Laikko from Omaha, Nebraska we concurred that negative decisions about the use of light pointers (and other head accessing techniques) are often made prematurely, i.e., before individuals have been given a "fair trial" within which to demonstrate motor learning. I quickly discovered that others shared our concern. The topic is discussed in the **Clinical News** and **Equipment** sections. My thanks to the many individuals I interviewed (see reference list) for sharing their ideas, opinions, and experiences.

In the U.S., activities at the federal level are really heating up. Both the Senate and House are holding hearings this month to address the use of technology for persons with disabilities. The **Governmental** section provides an update and recommends a plan of action.

During March and April, I was invited and honored to speak at the Syracuse, NY Speech and Hearing Association Conference; the Kluge Children's Rehabilitation Hospital and Research Institute in Charlottsville, VA.; the California Speech and Hearing Association in San Francisco; the Ohio Regional Center for Low Incidence Severely Handicapped in Columbus, Ohio; and the San Benito Board of Education in CA. I learned (cont. pg. 2)

Clinical News

Light Pointing: Abandoned Too Soon?

Many individuals make choices, request information, carry on conversations, participate in games, work, write, and talk on the phone using a beam of light or a sensor (mounted on their head).

Light pointing and other head-controlled, accessing techniques are considered as augmentative communication technique's for individuals who:

- Are unable to use speech as a functional communication technique, OR
- Are unable to access keyboard devices due to a. an absence of control (*amputation, polio*) b. reduced effectiveness of control (*degenerative conditions*) or c. interference with control (*athetosis, spasticity, or ataxia*), AND
- Have some ability to control head movements when properly seated and positioned, AND
- Have functional vision.

In preparing this article, I spoke with many professionals about current issues and practices related to light pointers. As you might expect, not everyone agrees about everything.

Statements reflecting a consensus:

- Communication training and motor training can and should occur in parallel. Individuals should be competent users of an accessing technique before they are asked to use it to communicate.
- Using play, games, and intrinsically motivating activities are more effective *(cont. pg. 2)*

UPFRONT (from page 1)

about their creative clinical practices and new, exciting research.

A reminder: The Hotline number is (408) 649-3050. Remember ACN has an answering machine. If you don't get an answer, hangup before the 4th ring and you won't have to pay. You can choose to leave a message so I can begin thinking about your questions. But, I will be unable to call you back. I simply can not afford to pay for everyone's phone call.

Thanks for your comments about ACN. We appreciate your feedback and ideas. Help spread the ACN word by sending us the names and addresses of people you think should know about us.

We would especially like to welcome our foreign subscribers from Australia, Canada, Denmark, England, Ireland, Japan, the Netherlands, Norway, Scotland, Spain, and Sweden.

LIGHT POINTING (cont.)

than straight drill and practice approaches to training.

- Motor training programs need to be implemented systematically using discrete steps.
- Mounting light pointers can be a problem.
- It is worth it! Everyone I spoke with was enthusiastic about light pointing as a communication accessing technique.

Questions & controversies:

Attention researchers!

- What time period is reasonable for an adequate light pointing trial? With which disabilities?
- What position on the head is optimal for which devices? With which groups? Does it matter?
- What equipment/materials insure stability and optimize control?
- Which strategies most effectively teach the skills necessary to use light pointers (and other head pointing techniques)?
- At what age/developmental level should/can light pointers be introduced?
- Do light pointers improve head control? For whom? Under what conditions?
- Do those who use light pointers require less time when training to use other head pointing techniques?

Guidelines:

These training guidelines reflect a synthesis of the opinions and experiences of master clinicians, consumers, and manufacturers whom I consulted. (see references).

"Functional communication" means that access to messages is efficient and effective 100 percent of the time. Therefore, individuals who use light pointing (or any other tool) for communication must demonstrate motor skills that are highly reliable, accurate, and are accomplished with minimal effort.

The motor skills needed to become proficient at light pointing improve with practice. Therefore, motor training programs are implemented concurrent with and parallel to communication training programs. With parallel efforts, new and more efficient means of access can be explored while communication skills and abilities continue to expand. For example, a child who uses eye gaze accurately to select messages on an Etran may (or may not) be able to use a light pointer to select messages from a communication display. Therefore, a motor training program is begun to assess the child's ability to use a light pointer. In the interim, the child does not "stop" communicating. Using the existing, functional communication system (i.e, Etran, gestures, facial expressions, & vocalizations), communication skills are further developed.

Principle #1: Individuals should be provided with a "fair trial" to determine the potential of light pointing as an augmentative technique.

"How long is a fair trial?" Although professionals do not agree, they concur that a minimum of 3 to 6 weeks is required to determine whether an individual has the motor skills necessary to learn to use a light pointer. Actual motor training for use with a communication aid may continue for many months (Note: most said from 6 to 12 months). Reportedly, Kathryn Barrett in Australia considers a "fair trial" to be 20 minutes of training a day for 6 months. The Communication Aids and Systems Clinic at the Trace Center in Madison, Wisconsin now provides loaner light pointers to clients for approximately 3 months rather than make decisions based on observations obtained during their assessments. Several years ago at Trace a group of physically disabled individuals participated in a 3 week training program to use the Long Range Optical Pointer. Although none were competent users at the beginning of the study, performance definitely continued to improve each week (Brady, personal communication). This clearly supports the "truism" practice makes perfect (or, at least improves performance).

Principle #2: Stable positioning and seating is essential to the effective use of any control device, including light pointers.

Upper trunk stability is critical. Trefler suggests (a) being aggressive in using proximal supports, and (b) using arm restraints, if necessary. She prefers to stabilize arms using a restraint tray. Others suggest holding onto a dowel placed to the front and side on a tray. If dowels are used, clinicians should monitor the amount of time and effort the person spends reaching for and falling off the dowel and the

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quality of the person's grasp on the dowel.

The head may also require stabilization. In many cases, head supports are needed. For those with erratic tone in their trunks, maintaining sufficient control with their heads is very difficult. Several clinicians recommend using a neck collar or support at the base of the neck/occipital area. Often, existing adaptive equipment (e.g., head rests) interferes with the pointer or head gear and requires modifications.

Principle #3: To control a beam of light mounted on the head requires some degree of head control.

Developing "head control" continues to play a major part in programs for the physically challenged. Proper positioning of the light beam and ultimately the display in relation to the individual will increase the likelihood that control is adequate.

Remember, restraints or support in the wrong place can interfere with function. Individuals with physical disabilities often can figure out ways to control their own body parts. Trefler cautions "Don't tell someone with fluctuating tone how to control their head for a light pointer. Instead explain to them what you want (i.e., control of the head) and encourage them to find a way to accomplish this. Then, watch. Let them tell or show you how to help out and where to provide restraints or support.

Many clinicians feel that light pointers may facilitate the development or maintenance of head control. For example, if an individual has increased extensor tone, a light beam may bring them forward and help them to maintain flexion. Therefore, those with "not so great" head control may benefit from light pointer training.

Principle #4: Mounting and stabilizing equipment on the head is complicated. The goal is to provide adequate stability with the minimum apparatus possible.

Consider the physical characteristics of the individual, the individual's preferences, the light pointer's features, and the type of head support apparatus upon which the light pointer will be mounted. Whether to mount the light on the side (laterally), on top, or on the forehead in a midline position is unclear. No consensus exists here at all! Some feel that a midline placement is preferable (especially with smaller children to encourage good head position). However, others prefer a lateral placement (especially with older persons because it is less obvious.) A few said that it probably doesn't matter. However, coordinating the direction of the beam with eye gaze is important. And, the beam should be directed at the middle of a display or target.

Securing the pointer on the user's head using an appropriate head mounting system is a "big problem." For some, the pointer can be mounted on eyeglasses, a single strap, an adjustable cap, or head band. However, for many others, stabilizing the pointer on the head means adding straps, making modifications to existing equipment, or designing and building new head gear. Several report that since they began using two straps in the back: one on top of the occipital lobe (over the ears) and the other under the occipital lobe (under the ears) stability has improved. However, like everyone else, they still have problems. Chin straps are controversial. Several recommended against them. Kathy Lee and colleagues in Toronto feel head mounting equipment should be "skin friendly," flexible and when adjusted, conform to the head.

Principle #5: The motor skills required to use light pointers can be learned. Suggestions follow:

Task analysis: Each technology (e.g., light beams) and each task (e.g., message selection) is different. First, develop an understanding of the tool. i.e., try it out. Then, complete a task analysis. For example to use a light pointer to select messages on communication display, individuals must be able to:

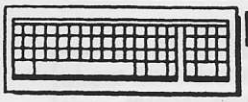
- Select a target by moving their head (which directs the light or sensor mounted on the head) to the desired target, and
- Maintain the light (or sensor) on the target until either a machine or a person recognizes the selection.

First steps: When introducing a light pointer, don't be obtrusive. Observe, assess, and learn. Prepare an interesting environment (classroom peers, a family album) in front of and within the range of the beam . Obviously, beams with the greatest range offer more flexibility early in training. Position the light pointer on the head and turn it on. *(You might consider turning out other lights to add a little drama).*

- Let the user explore and experiment . . . without interference! Make comments about what is illuminated, e.g., Look at that! *(Note: Kangas reports children begin pointing spontaneously to elicit more information or comments).*
- Focus on what the person is and is not doing. Is there a lack of stability, lack of head control. Are reflexes interfering? Watch for shoulder hunching or increased reflex activity. Pay attention to the person's level of interest, understanding of what they are doing, their motivation, and so on.

Early training: Use small, discrete steps based on your task analysis. Make the context fun and inherently motivating. Don't ask the person to point to a target. Go for gradual control. Games-like activities are introduced in relaxed environments. For example:

- If movements are erratic and the light is going all over, suggest that the person think "slower." Avoid the word "point."
- Ask the individual to make the light stay on one side of the room.
- Follow their beam with a crayon (Note: 1st, put paper on the wall.) *(cont. pg. 7)*



Equipment

Light Pointers

Light pointers are beams of light (ala a flashlight) that can be used to "point at" objects, people, pictures, or locations on a communication display. As such, they are categorized as absolute position devices, i.e., the user has a specific target to hit and head position and movement relates to the target (Buxton, 1986). Other examples of absolute position techniques that use head pointing are head sticks and light sensors.

Advantages of light pointers

- their potential as an alternative to scanning to increase the speed of message selection for individuals with severe physical disabilities.
- their advantage over eyepointing techniques because eyes remain freer.
- their application with younger and/or lower functioning, physically disabled individuals.
- the possibility that they may facilitate more upright postures and better head control in some individuals.

Two major disadvantages

- the difficulty encountered in mounting light pointers, which can preclude their use.
- their lack of cosmetic appeal to many users.

Opinions and preferences

Light pointers share certain features. The opinions of professionals with whom I spoke are summarized below *(see reference list)*:

Illumination: A discrete, high intensity, bright light with a discrete rather than diffuse beam of light is preferable. Many like a colored beam because of the feedback it provides. Check to see how far the beam can project and whether it is visible inside and outside. Is feedback to the user consistent? Adjustment of the focus point and direction of the beam should be possible.

Size and weight: Both from a cosmetic and mounting standpoint, lighter and smaller light pointers are preferred. However, smaller pointers may have dimmer light beams, so tradeoffs are necessary. Larger and heavier devices are harder to stabilize on the head.

Heat: Light creates heat. Although problems did exist, this is no longer reported as a concern because heat generating pointers are now mounted differently. To be safe, users should control their own "off/on" switches.

Power source: Light pointers are connected to a power source, i.e., various types of batteries. In some cases, cables from the pointer to the battery are pulled loose and become inoperable. Therefore, clinicians and manufacturers recommend preventative measures to reduce strain on cables. Some also suggest having spare cables available. Rechargeable battery packs are preferred.

Cosmesis: Smaller pointers are less obvious. However, the mount for the pointer really is the critical issue. Every effort should be made to incorporate the individual preferences of users with efforts to design mounts that stabilize light pointers. Unfortunately, cosmetically desirable eyeglass mounts and simple straps rarely provide sufficient stability.

Young children may not object to light pointers, but the adolescent and adult may refuse to consider them despite their obvious advantages. Clinicians feel that introducing light pointers to children at a younger age may result in more positive attitudes toward head accessing techniques later on.

Available products

ACS- Light Pointer - Adaptive Communication Systems, Inc. $295. Weight: 2 oz. Viewpoint dimensions: 13/16" at 2 feet. Rechargeable battery pack. Mounted on top or side with headband (chin strap also available). Can focus beam and adjust angle. User controlled on/off switch. A bright red dot, which provides good visual feedback. The size of this light pointer (which accounts, by the way, for it's excellent illumination) makes it is difficult to mount, particularly on individuals with lots of extraneous movements. It also activates the ACS EvalPAC and soon the RealVoice (HX-20 with Photo Board). Despite mounting problems, clinicians are pleased with this device.

Viewpoint Optical Indicator (VOI-6) - Prentke Romich Co. $339. Weight: 3 1/2 oz. Viewpoint dimensions: 5/8" at 2 feet. Rechargeable battery pack. It can be mounted on the front, top, or side of the head. The angle of the beam is adjustable. An on/off control switch is optional to the user. The VOI is also recommended for use with the PRC Optical Headpointer. The combination (Hybrid Pointer System) assists the user of PRC devices by providing feedback about the sensor's position on the display. The VOI does not activate PRC devices. Reportedly, the Hybrid is tricky to coordinate so that the beam and sensor converge. Ways to make adjustments are provided. The VOI-6 is used by many clinicians.

Model I Light Pointer - Jim's Instrument Manufacturing, Inc. $285. Weight: 8 ozs. Power: 3 "C" rechargeable batteries. Viewpoint dimensions: 1/4" at 2 feet. This small focused light (flashlight bulb) is positioned on the forehead using adjustable nylon headgear. The beam is usable under normal room lighting and can be adjusted. An auxilliary switch may be used to turn it on/off. Clinicians feel particularly positive about the stability of this mounting system.

Optical Keyboard - Diatronics, Inc. $985 for keyboard; $795 serial interface; $299 parallel interface, light & head mount with battery. This is a keyboard emulator. It takes the place of the keyboard and interfaces with Apple, IBM, AT&T, and Atari computers. A beam of light, mounted on the head, is directed at the photo sensors on each key on the Optical Keyboard. Users type by shining the beam on the key. (*cont. pg. 7*)

For Consumers

USSAAC in the Making: ISAAC'S Third National Chapter

At least 15 national and international organizations devote some time to augmentative communication in their meetings, in publications and special projects. However, only ISAAC, the International Society for Augmentative and Alternative Communication, promises to remain focused over time on the needs of individuals with severe expressive communication disorders. As an international organization, ISAAC can not address the unique needs within its member countries. National chapters of ISAAC were formed recently in Sweden and Great Britain to address the issues and requirements in their respective countries. The United States is currently pursuing a similar course.

USSAAC is the proposed U.S. Chapter of ISAAC. The purpose of the organization is to enhance the communication effectiveness of persons with severe expressive communication disorders in the United States by supporting state and local efforts.

Planning for USSAAC began over one year ago. Recently, the U.S. Facilitating Group (David Beukelman, Judy Matas, Sheela Stuart, Barry Romich, and myself (Barbara Sonies & Larry Weiss were unable to attend) met in Lincoln, Nebraska to further discuss and plan for the formation of USSAAC. At the meeting we proposed an organizational structure and completed a draft of the By-Laws, later refined by Barry Romich, Lyle Lloyd and Mary Binion.

This information is being prepared for review and ratification by the 35 U.S. Founders. Then, in late August, all U.S. members of ISAAC will be asked to vote "Yea," I support the formation of a U.S. Chapter or "Nay."

Like other national chapters of ISAAC, USSAAC needs to be a "grass roots" organization and build capacities within each state to affect public policy, public awareness, service delivery, funding and other issues important to individuals with severe expressive communication disorders. USSAAC also can encourage professional growth by supporting existing regional groups and conferences, biennial ISAAC conferences, and ISAAC publications. Finally, USSAAC can maintain strong relationships with other organizations and form coalitions that benefit the field. Membership benefits will include: membership in ISAAC and USSAAC, the USSAAC newsletter, & ISAAC publications. In addition, USSAAC will provide organizational expertise and make it easier to get information and services at a state and local level.

The first meeting of USSAAC may occur as early as October at the upcoming 3rd Biennial ISAAC Conference in Annaheim, California.

The Conference* (October 23-26) promises to be excellent. You will meet hundreds of people who know what augmentative communication is and learn about exciting developments and work going on all over the world. The conference is being held at the Disneyland Hotel. Every attempt is being made to make it possible for all to attend. Those who need special assistance, contact Carolyn Musselwhite (704-274-7554) or call me on the Hotline. Hope to see you there.

* For additional information about the conference contact: Frank DeRuyter, Ph.D. Program Conference Chair, Communicative Disorders Department, Rancho Los Amigos Medical Center, 7601 East Imperial HIghway, Downey, CA 90242.

Editor's note: Are there similar plans in other countries? Will some subscribers from other countries send me a note please?

Governmental

TECH Bill Hearings

Hearings on the TECH bills (#H.R. 3602 in the House of Representatives and Bill #S.1586 in the Senate) occur this month. Many persons with disabilities are scheduled to testify, including two who use electronic communication aids: Leo Lucas from Massachusetts and Tommy Dormer and his mother from Maryland. Among the topics/issues being discussed are:

- Technology and major disability types designated as: deaf, blind, physical, cognitive.
- Service delivery systems.
- Life functions assisted by technology designated as: education, independent living, employment, recreation.
- Funding and reimbursement.
- Research and development.

What's missing? COMMUNICATION! I am concerned that not only the hearings, but also the legislation does not directly recognize individuals with expressive communication disorders. Why? Perhaps because the ability to express oneself is so basic to life. Yet, only our actions will insure that legislation address (in ways that make sense) the application of technology for those who benefit or could benefit from AAC interventions.

After the hearings legislation related to the TECH bills may be introduced to Congress over the summer. There is a momentum building we can't afford to lose. The time line is very tight. Next year the players will change in both the House and Senate with unpredictable effects.

Elected officials respond to people. So, we have printed up a card for you to mail to Senator Harkins, Chair of the Senate Subcommittee on the Handicapped. Please add your own comments. While you're at it, send a similar card to The Subcommittee on Select Education, New Jersey & C St. S.E., Washington, D.C. 20515. It's worth a try!

University & Research

Purdue University

For more than 10 years professors Lloyd, Karlan, and Fristoe have provided leadership and preservice and inservice education in augmentative communication. Graduates of the Purdue program in West Lafayette, Indiana include Carol Goossens', Richard Luftig, Judy Dunham, and Diane Bristow...for whom we thank you.

The goal of the Purdue program is to develop and refine research skills. Masters and doctoral students at Purdue can select a major or minor empasis in augmentative communication. The emphasis is on conducting research out of the laboratory and in real life situations. Coursework, ongoing research seminars, and applied contexts provide the framework. Courses include an introduction to AAC, a course on cognitive, social, and communication interaction, a research seminar, and special seminars. A new course on clinical practice issues and strategies was just initiated.

Clinical practicum experiences are available in the public schools, local development centers, Purdue's Speech Clinic, and in other settings throughout the state. A major goal of the faculty is to encourage the development of clinical service delivery models in Indiana and expand available clinical sites.

Noteworthy is the international students that have attended Purdue:

- Australia - K. Bloomberg, J. Hooper, J. Windsor
- Canada - C. Goossens'
- India - R. Banerjee, P. Raghavendra
- Ireland - D. Malocca,
- Spain - C. Basil
- Sweden - M. Granlund
- Wales - L. Atherton.

(Several were funded through Rotary Club International).

Since 1983, Purdue has had doctoral and post doctoral fellowships funded through the Office of Special Education Programs (OSEP). The project, which uses a "perceptor" model, is administered through the Special Education Program (Project Director: Dr. Lloyd). Philosophically, a "perceptor model of research education" is employed in the AAC program, i.e., you learn how to do research by working with someone who is actively engaged in doing it.

Faculty

Dr. Lloyd, professor of Audiology and Speech Sciences and Professor of Special Education is editor of AAC - the Journal of Augmentative and Alternative Communication. Students are involved in the editorial process with 3 serving as editorial assistant (Kangas, McEwin, and Zangari). His major interests are in finding out more about AAC symbols, and how to improve our clinical intervention strategies.

Dr. Karlan is associate professor of Special Education. His major interests are: social and communicative interaction, particularly with the young and cognitively impaired, and using robotics to involve physically challenged children in decision-based activities and exploration.

Dr. Fristoe is a professor of Audiology and Speech Sciences. Her major interests are in the area of assessment for augmentative communication aids and techniques and in the application of AAC technologies.

Students and Fellows

Students who receive stipends from the OSEP project graduate from Special Education. In addition to the OSEP fellowships, there are other sources of funding in Special Education and in Audiology and Speech Sciences for those interested in AAC.

Ten doctoral students and two postdoctural fellows are currently enrolled in the program. Among their many research projects underway at the present time are:

- *Effects of symbol configuration on the learning of Blissymbols* D. Fuller, Ph.D.
- *Translucency order effects in learning Blissymbols* R. Quist, Ph.D.
- *Blissymbol enhancement* - P. Raghavendra
- *Complexity of Sigsymbols* - D. Frye
- *Sigsymbols: ratings by symbol type and translucency* - K. Kangas
- *Translucency effects on Sigsymbol learning* - Julie Wallis
- *The effects of associative stories and symmetry on the production and recognition of manual signs* - B. Loeding
- *The effects of exposure on sign acquisition by students with cognitive and communication impairements* - C. Zangari
- *Positioning students with cerebral palsy (effects on board use, interactions with various partner groups)* I. McEwen
- *Listener judgments of synthetic speech*- R. Quist, Ph.D.
- *Classroom intervention to improve the communicative interactions of a preschool physically disabled child* - K. Kangas
- *Training partners to use milieu language teaching strategies (Learning through Active Student Participation (LASP) Evaluation Project* - I. McEwen; B. Nail; L. Swanson; K. Kangas
- *Effects of co-movement routines on early social communicative interaction* - G. Pennington

For additional information contact Dr. Lloyd (317) 494-7333 and/or write Special Education Program or Department of Audiology and Speech Sciences, Purdue University, West Lafayette, IN 47907.

LIGHT POINTING (from pg. 3)

- Chase their light in the dark with your light.

Refining control: As control is demonstrated, begin refining it. Some clinicians feel that it is generally easier for users if they are asked to move from side to side rather than up and down initially. Obviously this will depend on the individual. Select both interactive and personal achievement oriented activities, i.e., improve their score on specified tasks. Gradually decrease the size of the target and increase the time the individual can sustain pointing at a target.

- Make a large maze (keep it simple) on the wall and have them "go through" the maze to find the treasure. For older individuals the "treasure" might be the punch line to a joke.
- Ask a child to "touch" people with the fairy's light.
- Play hide n' seek and other guessing games, e.g., what is missing or new in the room.
- Use doll themes - pick out clothes to dress the doll and other doll related play activities. Or car themes - select cars and drive them around.
- Introduce ways to make choices by shining the light to a preferred choice (person, object, location).
- Work on sustaining the beam of light over time using *freeze tag*, e.g., peer remains frozen when beam shines on him/her.
- Ask a person to keep a light within a circle 8" or more in diameter that is centrally located 2 - 4 feet away. .

Introducing two-dimensional displays: When control has progressed to the point at which clinicians feel accurate selections can be made on a communication display, motor training can focus on decreasing target size and increasing accuracy and reliability. Materials are presented at eye level and straight ahead. Kangas suggests asking the person to start at the middle of a display and make very small excursions to each side. Begin with few targets. Work toward control over an entire display. Refine directional control, moving up and down, right to left, etc. You can use many activities similar to those suggested earlier by adapting them.

- Play board games. Most can be played with light pointers without modification (except placement of the board & the need to manipulate pieces). Tic Tac Toe is another favorite.
- Increase number of targets and require pointing in a certain sequence. Change the patterns.
- Move outside of and back into a circle. Give points for each success within a given time period.
- Make choices from a display (decrease size of targets).

6. Communication training: Individuals will continue to refine motor control, but at the point sufficient motor control exists to be functional for communication, a communication display can be introduced and motor and communication training programs may once again converge. *(Note: this does not mean that previous communication methods are taken away!)*

Final Comments: The needs and capabilities of persons who use augmentative communication techniques change over their lifetime. Today's decisions are not likely to be tomorrow's. Augmentative communication teams always look toward more efficient and effective ways to access communication. Light pointing and other heading pointing techniques may be considered and reconsidered. Head pointing technologies are providing exciting options to those who need communication aid and computer access. Light pointing is not just an investment for today but for the future.

LIGHT POINTERS (from pg. 4)

Light Pointer - Linda Burkhart - $18.95. Power: 9 volt battery. Made from a flashlight, the light pointer illuminates a spot of light three inches in diameter. It may be used to point to objects/people/pictures or control a light activated switch. Instructions on how to make the light pointer (and the switches) are available or they can be ordered ready made.

Talking Beam - Crestwood Co. - $43.95. Weight: 5 ozs. Viewpoint dimensions: 1/2" spot 3/4" from target. Power: 2 AA batteries. A penlight with a fiberoptic wand. The beam of light is at the end of a flexible shaft (basically a head stick). It is mounted at midline on the visor of an adjustable cap (available for both children and adults).

Other head pointing control options

Although light pointers are the focus of this article, other accessing techniques use the head as a control site.

Light sensors that provide access to computers present a somewhat more demanding physical task than light pointers partly because of diminished feedback. However, position averaging filters or algorithms can help make the task easier for individuals with extraneous movement. Basically, the machine "guesses" the user's intended target by keeping track of which targets the user points to most often and selecting the one "hit" the most often.

Some clinicians and manufacturers feel that light pointers are valuable for what they do to enhance communication and can be a first step to more sophisticated technologies. Two examples of sensors technologies mounted on the head are:

PRC Optical Head Pointer 2 - Prentke Romich Co. $159. Weight: 2 ozs. A photo diode in the head pointer senses light emitting diodes in the Light Talker. It is mounted to a lightweight adjustable headband with foam pads at the temples. It can also be mounted on eyeglass frames. When a person moves their head and locks on a selection square, the selected square becomes brighter, an audible click is heard, and the message is displayed/spoken. *(p. 8)*

Long Range Optical Pointer - Words + /Trace. Adaptive Communication Systems, Inc. $1195 (pointing device, keyboard emulation software & a color graphic card). This device can be used with special communication software or can operate standard software on IBM and IBM compatible microcomputers at distances up to 6 feet. At the present time two monitors are required to use this device. The user points to a keyboard displayed on one screen; on the second monitor, the software is displayed.

Hints

Have you, friends, clients, ever tried automatic speech recognition of your voice over the phone? Could speech recognition work? Try it. On-line Votan demo (415) 490-7979. Maybe you can talk to your computer!

Hints

Project Materials Available Free! (or for Minimal Cost)

1. Deaf/Blind Project: Literature review, research monograph, selected intervention strategies. Call Communication Skills Center (503) 838-1220 x 391.

2. Special Friends & Computers Project: Preschool software suggestions, Unicorn board overlays, etc. Call UCPA Western, NY (716) 633-4440 - Susan Mistrett

Resources & References

Barrett, Kathryn. W.C. Allen Unit- Spastic Center, 5 Acquatic Drive, Allambic Heights, NSF 2100, Australia. Note: I was unable to reach her. Information about her approach is from Pamela Mathy-Laikko.

Brady, Mary. Assistive Device Center. Elizabethtown, PA (717) 367-1161

Cook, Al. Assistive Device Center, Sacramento, CA (916-924-0280)

Costello, John. Communication Enhancement Clinic. Boston MA (617) 735-6466.

Depape, Donna. Communication Aids and Systems Clinic S-120 Waisman Center 1500 Highland Avenue Madison, WE 53705. Paper available: Developing Light Pointing.

Goossens', Carol. University of Alabama-Birmingham. (205) 934-5448.

Kangas, Karen. Assistive Device Center. Elizabethtown PA (717-367-1161). Papers available: Ideas and Applications on Light pointers (3/88) & Head/Chin Sticks (12/87)

Lee, Kathy (who talked with me after consulting with D. Thomas, M. Beesley, S. Blackstein-Alder, J. Treviranus) Hugh MacMillan Medical Center. (416-425-6220 x538)

Lee, William (Esquire). Amecom Industries. (301-262-7018).

Leff, Ruth. Crestwood Co. Milwaukee, WI 53204 (414) 461-9876.

Mathy-Laikko, Pamela. Meyer Children's Rehabilitation Institute. Omaha, NE (402-559-5754).

Molter, Mike. Prentke Romich Co. Wooster, OH 44691. (1-800-262-1984).

Panzek, T. Diatronics, Inc. Pittsburgh, PA (412-922-2932).

Randolf, John. Adaptive Communication Systems. Pittsburgh, PA (412-264-2288)

Rogers, Jim. Jim's Instrument Manufacturing, Inc. Iowa City, IA (319 351-3429).

Smith, Roger. Communication Aids and Systems Clinic- Trace R & D Center, Madison, WE (608-263-8859).

Trefler, Elaine. University of Tennessee, Memphis, TN (901-528-6445).

Vanderheiden, Gregg. Trace Research and Development Center, Madison, WI. (608) 262-6966.

Vogtle, Laura. Kluge Children's Rehabilitation Hospital and Research Institute, 2270 Ivy Rd., Charlottsville, VA 22901

Warren, Lana. The Kennedy Institute for Handicapped Children, Baltimore, MD (301-522-5437)

Borden, P. & Vanderheiden, G. (1988). Communication, Control and Computer Access for Disabled and Elderly Individuals. Resource Book 4. Trace Research and Development Center: Madison, WI

Burkhart, L. (1987) Using Computers and Speech Synthesis to Facilitate Communicative Interaction with Young and/or Severely Handicapped Children. 8503 Rhode Island Avenue, College, Park, MD 20740.

Buxton, W. (1986) There's more to communication than meets the eye: Issues on manual input. In User Centered System Design (Eds. D. Norman & Draper). Lawrence Erlbawn Assoc.: Hillsdale, NJ.

Charlebois-Marois, C. (1985). Everybody's Technology: A sharing of Ideas in Augmentative Communication. P.O. Box 419. Jean-Talon Station, Montreal, Quebec, H1S 2Z3

Eriksson, B., Gawell, K., Munthe, K., Riddar, A., Rygaard, K., Windling, U., & Azchrisson, G. (1987) Activities using Headsticks and Optical Pointers: A Description of Methods. IPCAS:

Iris Fishman (1988) Electronic Communication Aids and Techniques: A Clinicians Guide. College Hill Press: San Diego.

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