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IN THIS ISSUE

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Contents

Contents

Front Cover: Liam Larnach using a Freestyle with Speaking Dynamically Pro and the CALLtalk vocabulary

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Switching on to Stories: AAC Use and Storytelling with Children with Severe and Profound Learning Disabilities

by Tiffany Birch, Alice Cross, Margaret Dumble and Keith Park

The paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Introduction

This presentation describes the use of storytelling with children with severe and profound learning disabilities. It is in two sections. The first section provides the descriptions of what we are doing, and why and how we are doing it. The second section outlines some of the issues we have discussed in implementing the storytelling activities.

What why and how?

This paper describes some storytelling activities for children with severe and profound learning disabilities in Charlton Park School in Greenwich, and Coney Hill School in Bromley: the two fairy tales 'Hansel and Gretel' and 'Red Riding Hood'; Charles Dickens' 'A Christmas Carol', Robert Louis Stevenson's 'Treasure Island', and Michael Rosen and Helen Oxenbury's 'We're Going On A Bear Hunt.' Both schools are experimenting with the use of drama, art and music in storytelling to stimulate the imagination (of staff as well as pupils), and to continue to move away from formal 'Communication Sessions' to the use of interactive stories as a means of developing communication skills in pupils and staff. The storytelling activities involve the use of signs, symbol topic boards, photographs, BigMacks, Step by Step Communicators, PowerLink Control Units, and a variety of single switches.

Why do storytelling?

'Meat of the Tongue', a Swahili story from Angela Carter's collection of fairy tales (Carter, 1991), tells of a sultan whose unhappy wife grows leaner and more listless every day. The sultan sees a poor man whose wife is healthy and happy, and he asks the poor man his secret. 'Very simple' answers the poor man, 'I feed her meat of the tongue.' The sultan immediately orders the butcher to buy the tongues of all the slaughtered animals of the town, and feeds them to his wife. The queen gets even more thin and poorly. The sultan then orders the poor man to exchange wives. Once in the palace, the poor man's wife grows thin and pale. The final part of the story goes as follows:

> *'The poor man, after coming home at night, would greet his new (royal) wife, tell her about the things he had seen, especially the funny things, and then told her stories which made her shriek with laughter. Next he would take his banjo and sing her songs, of which he knew a great many. Until late at night he would play with her and amuse her. And lo! The queen grew fat in a few weeks, beautiful to look at; and her skin was shining and taut, like a young girl's skin. And she was smiling all day, remembering the many funny things her new husband had told her. When the sultan called her back she refused to come. So the sultan came to fetch her, and found her all changed and happy. He asked her what the poor man had done to her, and she told him. Then he understood the meaning of* ***meat of the tongue.'*** (Carter, 1991, p 215)

Storytelling, it seems, is a vital ingredient of human experience. But if this is so, how can we do storytelling with people who have sensory impairments and additional disabilities? Why should we bother? Jean Ware provides an answer when she suggests that, in choosing activities for people with profound and multiple learning difficulties, our aim should be 'to enable the child to participate in those experiences which are uniquely human' (Ware, 1994, p72). Storytelling may be one of these uniquely human experiences. Whether it is legend, myth, folk tale, fairy story, poem, novel, film or play, the principle is the same: everyone everywhere enjoys stories. According the story 'Meat of the Tongue', we all need them. Angela Carter suggests that 'For most of human history, 'literature', both fiction and poetry, has been narrated, not written - heard, not read' (Carter, 1991, p ix). The literature of fiction and poetry from around the world has existed in oral form for many thousands of years, long before the development of comparatively recent forms: writing, printing, radio, TV, cinema and internet. The oral narration of stories was, and often still is, a social event where the story is sung, spoken or chanted, or in other words, *performed.* Storytelling is far more important than reading and writing: our starting point for literature may therefore be in *the performing of stories.*

How are stories adapted?

These suggested guidelines to adapting the classics are a summary of discussion points that we have found useful in the process of adapting these stories.

1. Why do it?

This may sound facetious, but it is a very important point. We are developing storytelling activities because of the intrinsic value of story, not because of any governmental edict that says children should be introduced to Charles Dickens, fairy stories or nineteenth century classics at a certain age. Opinions about literature are subjective - try discussing with friends and colleagues what 'classic' means!

2. Choose a story you enjoy

After a recent storytelling session, a teacher said that she felt the children in her group enjoyed the story because they could feel that she, the teacher, was enjoying it. Choose a story, a poem or piece of prose that you enjoy and one with which you feel comfortable.

3. Read the original

Mark Twain once wryly defined a literacy classic as something that everyone wanted to have read, and no-one wanted to read. Whether you choose Chaucer's 'The Miller's Tale', the poetry of Ted Hughes, or the Rubaiyat of Omar Khayyam, it is important to read or re-read the original, or as close to it as possible if the original is not in a language you read.

4. Do a story outline: key scenes and characters

Decide what are the key scenes and the main characters. In 'A Christmas Carol', Scrooge is clearly the main character, and the key scenes are the visitations of the ghost of Jacob Marley and then the Three Spirits and Scrooge's final moral rejuvenation. This is easier to do with a short story that has such a straightforward storyline, but many classics - such as Treasure Island - require a more lengthy analysis.

***5.* Identify theme and mood for each episode - think contrastive**

The activities for most of the stories are contrastive in form, content and mood: activity one can be loud and boisterous, episode two is slow and quiet, and activity three is loud and boisterous again. This delineates the story progression. If each activity is similar in theme and mood, the story may lose all shape and definition.

6. Choose for each episode an activity and an extract of text

In episode one of 'A Christmas Carol', we often use a switch device with *"Bah Humbug!"* recorded on it. One of the most favourite activities is pressing the switch to hear Scrooge's catchphrase. Consult a BSL user for a sign for *'Humbug'* or *'Rubbish'*. Activity three is a chant that uses the ingredients described by Dickens that the Cratchit family has for their Christmas dinner.

7. Find resources

If you want to adapt a classic, a valuable first step is to find an ally, especially a supportive colleague. More than one is even better!

8. Enjoy it

Most important of all is the enjoyment of the storytelling activity. We have adapted stories in order to enjoy them and not to pay homage to them. The staff have enjoyed the stories and this enthusiasm has transmitted itself to the children.

Issues for Consideration

1. Multi-disciplinary collaboration

Storytelling offers many opportunities for collaboration between therapists and teachers, music therapists, teachers of the deaf and hearing impaired, and so on.

2 Differentiation within storytelling

In many ways the most difficult and most rewarding challenge is to find an inclusive storytelling activity that can accommodate children with a wide range of strengths and needs, including those children with profound and multiple learning disabilities.

3. What is 'age-appropriate' and what is 'person-appropriate'?

The storytelling has generated much discussion on what is age-appropriate material - for example, at what age, if any, do fairy tales become inappropriate? There is no clear answer to this difficult issue other than to quote Beryl Smith's observation: 'While age-appropriateness and developmental appropriateness are both important concerns, maybe we should concentrate more on what is 'person-appropriate' (Smith, 1996, p79).

4. Opportunities to enjoy language

It has been persuasively argued (Grove, 1998) that the language of poetry and prose can be experienced affectively. The affective, emotional response to poetry and story is within all us, and has little to do with the decoding of words into meaning components in order to appreciate its meaning. Try decoding parts of Shakespeare's Macbeth, the nursery rhyme 'Ring A Roses' or James Joyce's 'Finnegans Wake.' There are many stories - Bear Hunt is one excellent example - of how language can be enjoyed, explored and extended by the affective responses to the rhythms of language. Millions of children experience this on a regular basis with parents and carers - are the same experiences available to children with severe and profound learning disabilities?

Not Being Afraid to Make Mistakes

We have learned that making mistakes can be a productive exercise because it helps to fine-tune the differentiation of the activities. However, to avoid serious calamities it is important to use repetition, the use of consistent staff, for staff awareness, and yet, at the same time, finding the optimum number of sessions before it starts to flag.

Evaluation

Activities are planned that have group aims and individual aims, and these are being evaluated by staff discussion. We are also using the 'Responses to Literature: a framework for evaluation' (Grove, 1998).

The Next Step: What Next?

With appropriate planning and structure, it may be that most literature can be used in a similar way. We would be very interested to hear from any colleagues who are adapting stories to share information and to collaborate on future projects.

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DynaVox (Sunrise Medical) Advertisement

Success in AAC: Does Speech and Language Therapy Make a Difference?

by Mike Clarke, Pam Wood, Katie Price and Helen McConachie

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Introduction

Children using augmentative and alternative communication (AAC) systems face many barriers to self-expression. When interviewed, parents have identified barriers to include the amount and organisation of speech and language therapy (SaLT), (Ko, McConachie and Jolleff 1998). Speech and language therapists (SaLTs) in England and Wales have worked to develop services in light of:

1. Increasing focus for inclusion of children with special needs in mainstream schools.
2. Demands to document outcomes.
3. Preferences for SaLT delivered in 'functional' settings. It is generally the case that in schools SaLTs have translated functional settings to mean classroom settings. This paper proposes a number of strategies for examining SaLT provision for school aged children using AAC systems.

Aims

This paper describes a project which aimed to:

- Document the variety in amount and type of SaLT intervention provided during one school year for children with motor impairments who use communication aids.
- Make a preliminary analysis of the relationship between parameters of intervention and outcomes in terms of children's use of AAC systems and progress in communication skills.

Method

Subjects

The inclusion criteria were:

1. An AAC system at least 20 symbols and/or pictures and/or written words from September 1997.
2. Demonstrated understanding of adult requests with at least two information carrying words.
3. SaLT provision based at school. Children were excluded from consideration if they had (a) a degenerative condition; (b) a communication disorder that was primarily social in character (e.g. autism).

A whole population survey of six London Authorities identified 26 children.

Twenty-three children were recruited to the project (mean age: 11 years 3 months, range: 3 years 9 months to 16 years 6 months). Five children attended local mainstream schools, and the remainder attended special schools for children with physical disabilities. One child transferred from special school to mainstream school during the course of the year.

Measures

Documenting the amount and type of therapy

Therapists were asked to report work with or about the child of fifteen minutes or more. Data recorded: Session objective for the child (coded as linguistic/operational or social/strategic; Light 1989), people involved, structure of the session (e.g. group work or one-to-one therapy), location of the session, function of the session (e.g. therapy, administration), cancelled sessions, and time of contact with or about the child.

Observation of children's communication in school

Each period of observation totalled 66 minutes, spread out through the school day. Each child was observed on five occasions across the school year. The following categories were recorded:

1. Initiator of the communication sequence.
2. Content child's communication (coded as 'yes/no' or 'content').
3. Mode of communication (a hierarchy of aid, vocalisation, gesture including sign was used).
4. Assistant (the presence or absence of a designated assistant or person acting as a facilitator for the child).

To allow for direct comparison between environments within schools the communication of one child (child H) in special school was sampled in group therapy.

Goal Attainment Scaling

Each term, the child's speech and language therapist set one or two communication goals. Goals were transformed in to a five-point scale, where 0 represents the expected end-point, -2 the starting point, and +2 a better than expected outcome (Kiresuk and Sherman 1968).

Child Characteristics

Documented characteristics were:

1. Verbal comprehension (Bishop 1982). For those children whose scores fell below four year level (assessment baseline), understanding was described in terms of number of information words understood in a sentence.
2. Language functions (McConachie and Ciccognani 1995).
3. Functional learning ability.
4. Level of intelligibility of speech (Pennington 1996).
5. Primary communication aid.
6. Age.

Interview measures

Class teachers, Learning Support Assistants (LSAs), therapists, children using AAC systems and their classmates were interviewed to explore issues concerning AAC system use and barriers to communication. Focus group interviews with young adults using AAC systems were convened to explore salient issues and inform later interviews with children.

Analysis

Much of the overall analysis is descriptive, because of the number of uncontrolled variables, with triangulation of data from the various methods used in the research. Where quantitative variables are related to each other, non-parametric statistics are used: Mann-Whitney U test, Kruskall-Wallis H, Spearman rank correlations, accepting $p<.05$ (2-tailed) as significant.

Results

Provision of Speech and Language Therapy

Amount of therapy

Total levels of therapy support recorded included direct therapy working with the child on the development of AAC skills, direct therapy working with the child on other skills (e.g. feeding), and non-contact time spent in planning, liaison and so on. The total amount of time spent in support of AAC system users varies greatly both within and between schools (range 10.8 hours – 127.8 hours, median: 38.2 hours). Children in mainstream school received significantly fewer hours of therapy provision than those in special school ($U = 1.0$, $p<.01$).

Organisation of therapy

On average 42% of direct therapy focused on developing AAC skills was taking place in classrooms. The average masks considerable variation, for example in mainstream schools only 2% of direct therapy was delivered in the classroom. Within special school settings the majority of SaLT located in the classroom was organised as group work (87%). These groups targeted social/strategic competencies. Therapy taking place outside the classroom was principally organised as one-to-one therapy focusing on the development of linguistic/operational skills.

Observed communication in school

- The five children in mainstream schools were observed to use their AAC systems very little.
- Child H was observed to use her AAC system more in group therapy than in class, (mean proportion of aid use in group therapy and class; 55% and 4% respectively).
- Within special schools the amount of AAC system use was greater where children were assisted by adults. Those children with an individually allocated LSA showed more AAC system use than those supported by generic LSAs.
- AAC system use was related to level of speech intelligibility.
- Very few initiations of communication sequences were observed between children.
- The amount of AAC system use was strongly related to complexity in content of children's communications, and to number of initiations made by the child.
- These was no direct relationship between AAC system use, complexity in content of communications or initiations of communication sequences, and amount or type of therapy received.

Goal attainment

The proportion of goals which were rated at or above predicted level was significantly correlated with total amount of therapy provision ($r = 0.53$, $p<0.05$).

Interviews

A broad range of opinion regarding the value of AAC systems was documented from teachers and LSAs. Almost without exception LSAs reported that they had learnt to communicate with children using AAC systems 'on the job'. They reported little or no official training. Children and young adults using AAC systems reported a preference for therapy organised as one-to-one work in a context outside the classroom.

Discussion

A summary of issues raised by this study are highlighted in this section.

Evidence suggests that children benefit from adult support in use of AAC systems, and that children with an allocated LSA use their systems more. In England and Wales it has been advanced that LSAs should work as generic support rather than allocated support. For children using AAC systems this study suggests that an allocated support worker can make a measurable difference to children's AAC system use. In addition, the need for direct training and support of LSAs is highlighted.

In response to perceptions of 'good practice', therapists working in special schools are able to conduct therapy in classrooms. This was not the case for therapists in mainstream schools. However, this emphasis on therapy in 'natural settings' is in apparent contrast with the views of children and young people using AAC systems. This interesting paradox challenges perceived wisdom and emphasises the value and importance of seeking children's views as service users.

Children's use of AAC systems was not related in any straightforward way to amount or type of therapy received. Some child characteristics and characteristics of the environment appear influential.

Concern is often expressed that children will not learn to speak if given an AAC system. However, children with less marked difficulties producing intelligible speech were observed to use their AAC systems less than children with greater difficulties. It seems, therefore, that the introduction of an AAC system will not suppress speech.

AAC system use was also seen to vary significantly between mainstream and special schools. Child H was observed to use her AAC system less in class than in group therapy. This would appear to confirm clinical consensus that environ-

ments strongly influence AAC system use. This raises some concerns for children in mainstream school. Not only were they seen to be using AAC systems less despite having unintelligible speech, but they also received significantly fewer hours of therapy than children in special school. A relationship between the amount of speech and language therapy and progress in specific therapy goals has been observed. This suggests, therefore, that children using AAC systems in mainstream schools are at risk of failing to reach their potential for progress in the development of communication skills. In addition it seems that provision in amount of speech and language therapy appears to be related to educational placement rather than individual needs.

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Macaw / Spokesman (Toby Churchill) Advertisement

Moon as a Route to Early Communication and Literacy for the Multi-disabled Visually Impaired Child

by Caroline Knight and Denise Warren

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Moon, a tactile reading code, was first published in 1847 by Dr. William Moon. Many of the letters were based on upper and lower case letters of the Roman alphabet and can also be grouped by their basic shapes through curve, hook, square and line. Moon is bulky and could not be easily written and was therefore overtaken by braille. However, it proved helpful for many elderly blind people, with a former knowledge of print and poor tactual skills, who could not access braille.

The *Moon as a Route to Literacy* Project (1992-94) carried out at the University of Birmingham found that Moon could be used with multi-disabled children with visual impairment. The advantages for this group are that the simple lines and shapes are easier for tactile discrimination, it can be enlarged and there are fewer contractions. Disadvantages are the confusion of some letters due to orientation and the fact that as yet there is no simple way to produce Moon.

The use of Moon has enabled multi-disabled children with visual impairment to achieve traditional literacy skills of reading and some have had success in writing using an expanded keyboard with Moon overlay.

At RNIB (Royal National Institute for the Blind) Rushton Hall School our pupils have complex needs which may well mean that reading and writing are not realistic outcomes for them. Indeed, many are non-verbal and are just beginning to develop intentional communication. It is more helpful to view

...[we] start from the individual's interests and abilities and build on these.

these children as being at the stage of 'emergent' literacy (Koenig 1992). Sighted children at this stage of development will have countless experience with a wide range of pictures, symbols and print in their lives. Before they are formally taught to read they will have developed an understanding that abstract symbols can have meaning e.g. recognising a logo on a shopping bag. They will also know that people use these symbols to communicate meaning e.g. when they receive a birthday card. It is essential to provide parallel opportunities for visually impaired children. Moon, whether a whole word or an initial letter, can be used alongside other strategies such as Objects of Reference, speech and/or signing. If used in contexts which are meaningful and motivating for the child, and if given sufficient repetition and reinforcement, the visually impaired child can be enabled to move from the use of concrete objects to more symbolic forms of communication.

At Rushton Hall we do not follow a rigid sequence for this process, but rather start from the individual's interests and abilities and build on these. Where possible we focus on activities that will promote independence as this gives the child a sense of achievement and raises self-esteem. As already stated, these skills require a lot of repetition and so it is also important that they are fun for the child (and the staff too!).

The following are examples of children using or working towards using Moon to further develop their communication and literacy skills.

Ruth Staged modification of Objects of Reference into single Moon letters that can be used when choosing an activity or a snack.

Steven Tracking lines of drinking straws in his book. As he practices his fine motor skills he is also learning about pages and books and gets a great sense of achievement as he finishes his book.

Justin Reading the Finger Fun book Justin is learning to identify 2-D representations of objects and is also discriminating between the text and the tactile illustrations.

Laura Using a tactile overlay on the concept keyboard Laura's use of her tactual skills is reinforced by an auditory reward. Initially music was the only motivator but now she enjoys accessing familiar poems/ stories.

Sue Also uses a tactile overlay on the concept keyboard to read a story, but this time Moon words are included.

Bob Bob has learnt to recognise twelve Moon letters and is beginning to read simple consonant - vowel - consonant words.

Using Moon with multi-disabled, visually impaired children gives them an additional means to participate in a range of communication and literacy activities. They are enabled to interact with their environment in a more meaningful way and some may go on to acquire skills that they can then use independently both in learning and leisure.

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Making the Curriculum Work for VOCAs: The Redway School Model

by Clare Latham and Ann Miles

This paper was submitted for the CM'99 National Symposium, Lancaster University, September 1999

This paper will address the problems of using Voice Output Communication Aids (VOCAs) in the classroom. It will highlight the need for a whole school philosophy placing communication at the core of the curriculum. The Redway School communication framework and examples of its translation into classroom practice will be illustrated. The paper will address the issue of vocabulary selection in the light of this model.

Introduction

At the Redway School for children with severe and profound learning difficulties, we have appreciated the value of voice output communication aids for many years. From tentative beginnings we have seen many children develop communicative confidence through VOCA. Some children have relied on their VOCA for their main communication method, for others it has supported and prompted their own speech. However, we have wrestled with the problems familiar to many of those trying to introduce voice output communication aids in a school setting and this paper aims to share our solutions to one of the problems.

VOCA in the Classroom - Issues

When children were first introduced to communication aids they used them in individual sessions with the Speech And Language Therapist (SALT) or the communication support teacher. As children began to find a role for their voice output communication aids, the school was eager to extend their use into the classroom.

The major stumbling block was vocabulary selection for home and classroom use. The first communication aids we were able to use in school had limited available vocabulary - these were the ORAC, the Digivox and the Macaw.

We attempted to use two recognised approaches to vocabulary selection – 'scripted' and 'curriculum orientated vocabulary'. Scripted involved examining daily routines and supplying the child with specific vocabulary to enter into them. For example, "drink" to request a drink at snack time. This approach filled the limited overlay with drink and snack choices used once a day and left no room for further vocabulary.

'Curriculum orientated vocabulary' selects words related to curricular areas, for example, science might include specific topic words such as "magnet" or "force". These enable the child to answer closed questions during that teaching session but the vocabulary is redundant for the rest of the week.

Children were overloaded with vocabulary and had no opportunity to learn any of it well. The overlays were changed by the staff or parents who decided what the user wanted to talk about next. The vocabulary offered to them did not relate to their communicative or developmental needs.

Both approaches allowed the child and teacher to appreciate the power of speech but did not enable the child to develop functional communication.

Communication at the Core of the Curriculum

During this time, the school was developing a philosophy concerning the role of communication skills. The key features of this philosophy is the placing of communication at the core of the curriculum.

The school's philosophy was based on the functional (or sociolinguistic) theory of language development. The fundamental principle underlining the functional theory is the use of language to communicate and affect the behaviour of others (Bruner 1975).

The key point of the English Policy developed by the Redway School can be summarised as follows:

> English Policy
> **Communication Skills**
>
> Communication is a core area of the school's whole curriculum policy and as such the teaching of language and communication skills are not confined to timetabled session alone but fully integrated into the life of the school and a part of every curricular area.

This meant a major shift in emphasis, from communication supporting the curriculum, to the curriculum supporting communication.

To support this policy we developed a curriculum framework of communication skills. The framework concentrated on the functional use made of communication techniques and development focused on communicating more sophisticated functions and using more effective methods (Latham and Miles 1997).

The communicative functions fell into four bands, approximately covering the developmental processes between birth and 5 years. The banding system relates to cognitive development.

Figure 1 shows the relationship between the communicative functions and cognitive development within the bands.

These cognitive underpinnings and language functions form the core of all the curriculum and therefore ensure the curriculum truly meets both the cognitive and communicative level of all the children what ever their means of communication. This is the base for classroom planning and teaching. Teachers plan and differentiate according to the assessed bands of the children in their class.

Consequently, communication and appropriate cognitive skills are taught consistently across the curriculum.

Band 1: Pre-Intentional

COMMUNICATION FUNCTIONS
- Likes
- Dislikes
- Wants
- Rejects
- Recognise familiar and unfamiliar

COGNITIVE FUNCTIONS
- Engages in sensory activities
- Relates to people or objects
- Explores objects by mouthing or banging
- Needs time to engage in non-routine activities

Band 1: Intentional

COMMUNICATION FUNCTIONS
- Draws attention
- Requests
- Greets
- Protests and rejects
- Gives information
- Responds

COGNITIVE FUNCTIONS
- People and object play is integrated
- Exploring objects develops
- Combines objects
- Early recognition of the use of common objects

Band 2: First Meanings

COMMUNICATION FUNCTIONS
Expresses:
- Existence
- Disappearance
- Recurrence
- Possession
- Rejection
- Non-existence
- Location
- Action
- Agent
- Object
- Attributes

COGNITIVE FUNCTIONS
- Learns through own activity
- Combines objects purposefully
- Symbolic play
- Sorting in play

Band 3: Formal Language System

COMMUNICATION FUNCTIONS
- Socialises
- Gives information
- Describes
- Directs
- Questions
- Repairs misunderstandings

COGNITIVE FUNCTIONS
- Sequences ideas in play
- Basic concepts of size, number, colour and position
- Needs to relate to the 'here and now'

Band 4: Language for Learning

LANGUAGE AND COGNITION BECOME INTER-RELATED
- Reasons and predicts
- Plans activities and evaluates results
- Negotiates own needs against the needs of others
- Questions to find out information
- Understands abstract ideas and language (e.g. past and future)
- Early cognitive skills develop (number, alphabet, etc.)

Figure 1 Communication and Cognitiion Framework

- Existence - "look"
- Disappearance - "gone"
- Recurrence - "more"
- Possession - "mine"
- Rejection - "no"
- Attributes - "yuk"
- Non-existence - "no"
- Location - "there"
- Action - "go"
- Agent - names of people
- Object - names of objects

Figure 2 Words Selected for a Band 2 Child

LESSON PLANNING SHEET

SUBJECT: Science **THEME:** Ice

OBJECTIVE: To know that ice melts when it becomes warmer.

OUTCOMES: Each child will have explored the properties of ice.

LESSON PLAN:

1. Introduce ice. All the children to touch and feel it.
2. Split into groups.

Band 1: Flavoured ice lolly, plain crushed ice, ice cubes

- Make a choice of ice form
- Touch, feel and taste (hold in mouth)
- Teacher records what and how the children responded
- Teaching points: Respond to expressions of like, dislike, want and reject; Record adults name on VOCA to call for attention.

Band 2: Shallow bowls or trays, cups, spoons, sieves, etc., ice cubes and crushed ice

- Children are encouraged to play in the ice using the utensils (filling, emptying, etc.)
- Record expressive language used spontaneously
- Teaching points: Comment on what the childre are doing using Band 2 vocabulary; Clarify their expressive language (e.g. "brr cold", "more"); As the ice melts, model "gone"; Model "gone", "more" on VOCA.

Band 3: Ice cubes, hair dryer, tape recorder

- Handle and play in ice
- Demonstrate melting ice using the hair dryer
- Children handle the hair dryer to melt ice
- Children and teacher use a tape recorder to talk about what happened
- Teaching points: Model appropriate language by commenting on what is happening while melting the ice; Focus on descriptive terms "hot" and "cold" on VOCA and for speakers.

Band 4: Ice cubes, several heat sources (hair dryer, hot water bottle, radiator, candle), worksheet

- Handle and play with the ice; discuss its properties
- Ask children to predict what will happen when warmed
- Ask children for suggestions about how to warm ice
- Experiment with different ways of melting the ice
- Teaching points: Ask children to reason, predict and evaluate the results using VOCA or speech.

3. Plenary: Bands 1 & 2 finish within thier groups at appropriate times by examining objects of reference, preparing them for the next activity.
4. Plenary: Bands 3 & 4 meet to listen to recording by Band 3, and for Band 4 to descrbe what they did.

Figure 3 Lesson Planning Sheet

When children are assessed within a communicative band the educational aim to develop and make more effective, the communication functions within that band, hence the children using VOCA only need access to words which express those functions.

VOCA and the Curriculum

Returning to vocabulary selection for VOCA users, we are able to select words which express the communicative functions from the band at which the child is assessed. Figure 2 shows the words selected for a Band 2 child.

All the children in the school are assessed using the same model of functional communication whether their main com-

continued on next page...

Redway School Model ...continued from previous page

munication method is speech, VOCA or gesture, thus, in the classroom setting the teacher will be encouraging all the Band 2 children to express the same language functions using similar vocabulary. For example in food technology, children request *"more"* cake mix to fill the bun cases and the teacher responds by showing the empty bowl and modelling *"gone"*.

Figure 3 shows an example of a lesson plan for science covering all 4 bands in one lesson. This illustrates how communication and cognitive demands are consistent throughout the curriculum.

It should be noted that although children are able to practise and develop communication skills in the classroom, VOCA users still require individual time with the SALT to learn to access the functional vocabulary on their aids.

This system has clear implications for communication aid selection. At Band 1, a single message device can be used for recording greetings and other early communication functions. Band 2 children need a device with access to about 20 keys in order to use all the Band 2 functions. At Band 3 and 4 the vocabulary needs grow significantly, and more sophisticated devices such as the DynaMyte or DeltaTalker become essential. However, building functional vocabulary ensures that earlier vocabulary does not become redundant. For example, the questions added at Band 3 *(who, what, where)* are still necessary when Band 4 questions *(how, why)* are introduced.

Conclusion

We believe the key to the smooth introduction to VOCA within the school setting is the acceptance by the school of the need for developmentally appropriate teaching of functional communication skills for all the children.

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Speeding Up Your Switch Input

by Paul Hawes and Paul Blenkhorn

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Despite the emergence of exciting new technologies such as eye tracking and speech recognition, a large number of people with disabilities are dependent on the use of switches for communication, both verbal and written. Using a switch in this way can be a slow and frustrating business, and much thought has gone into ways of improving the rate of input with switch systems.

Most people who use switch input systems are aware of the advantages of smart typing (word prediction) and of the importance of an efficient layout of the scanning grid. However, there are some less widely used techniques that enable a user to achieve a faster rate of input.

In this paper, we will be looking at some of these and considering which users may benefit from them. Some will be appropriate for spellers and some for symbol users. The improvements in switch activation methods will help any switch user.

Corrective Scanning

It is inevitable that a switch user will make mistakes in selection. Switches may be pressed too soon, or too late, or a momentary loss of concentration results in a frustrating mis-selection.

Here are some devices that we have used to improve the accuracy of switch input and to allow users to recover from mistakes without the need to perform a second scan to delete the error (and a third to re-make the selection).

Reverse scan

A frequent error is to miss a cell by failing to press the switch in time. When this happens, it is very annoying to have to watch the highlight moving further away from the cell that you wanted. Depending on the software, you may need to wait for the system to cycle around again, or use another switch to cancel and start all over again. Reverse scanning allows the user to send the scan backwards when the correct cell has been passed. In our software we implement this by using a long hold on the switch. A user setting enables the definition of a long hold to be adjusted to suit the user. Most people using this technique find that a time of between one quarter and one half of a second is appropriate.

Options to quit

The reverse scan technique will work as long as the user is still within range of the desired cell. However, if the wrong row has been selected in a row/column scan then it will be too late to use a reverse scan. A second switch may be used to quit the scan, but the user may not have the use of a second switch. In this case, we provide an option that will automatically allow the user an opportunity to quit the scan without making a selection at the end of each row.

Critical overscan

Some users with a gross tremor will find that no matter how ready they are to press the switch when the scan comes up, their reactions are frequently delayed, and the switch is pressed too late. It is also common for such users to find it difficult to hold down a switch until the desired cell is reached. The result is often a painfully slow automatic scan. This technique works by ensuring that only the cells close to the target are scanned slowly. When the scan starts, it moves forward at a fairly high speed, and the user tries to hit the switch again when the target cell is reached. Depending on the speed setting, the highlight has moved two or three cells beyond the target, but the scan automatically goes into reverse at a much lower speed. In this way, only a few cells are scanned at the lower speed.

More forgiving switch modes

The use of a delay before the software processes a selection is another way of making a switch input more effective for people with poor motor control. This is particularly effective for people using switches by holding them down until the target is reached. One example of this is using two head switches for row/column scanning. One switch is used to advance from row to row, while the other is used to move along the row. When one of the switches is held down, the scan moves in the appropriate direction at predetermined rate. When the switches are released, nothing will happen until a time out has occurred. In this way, if the user should accidentally release the switches at the wrong time, there is a chance to continue the scan by pressing one of the switches again.

Coded Input

Using the switch, or switches, to enter a code can be faster than scanning. Most people do not have a great deal of difficulty in mastering the basic alphabet codes, but to memorise a completely arbitrary code to cover all the possible functions of a computer keyboard is much harder. Imagine how much longer the Morse code would be if we had to invent sequences to cover such possibilities as CTRL F7 or holding down the ALT key while tabbing through the open windows.

We approached this by embedding the codes into a normal scanning grid. A quick switch code swaps between coded input and scanning. This allows word prediction, rarely used obscure keystrokes and special macro functions to be embedded in the on-screen keyboard and avoids the need for an extended code sequence.

Two kinds of code are useful here: binary codes and chord codes.

Binary codes

The attraction of a binary code is that it is very adaptable for switch users. If the user can manage two switches, then one switch can represent each part of the code. The most common example is Morse code. Normally, pressing down a Morse key for a short or long time enters the dots and dashes. A switch user can use two switches in the same way. In theory,

the ASCII code (the computer binary alphabet made from 1s and 0s) could be used in the same way.

Another binary code that has enjoyed popularity in the UK is CID (Computer Input Device). In this code, either switch 1 or switch 2 is held down for a number of counted beeps. Then the switch is released for a given number of beeps. Finally, switch 2 is pressed for a given number of beeps. Although this requires a longer sequence than Morse, it can be useful in cases where a more regular pattern helps the user.

Chord codes

These are based on a scanning version of a chord keyboard. A chord keyboard is one with a limited number of keys which are pressed in combinations to generate the different characters. The most famous example of a chord keyboard is Braille, where six keys are pressed in various combinations to represent the characters.

It is possible to use a scanning version of the code, where the keys are highlighted in turn. As the scan progresses, the user presses the switch each time that a key that is a part of the desired character is lit. At the end of the scan, the system looks at which keys were selected and enters the character. This is hard to describe, but easy to do. Using this type of scanning can be quite restful, as each character takes the same amount of time to generate, and no letter is further than a few scans away from the start position.

Our implementation of this idea is to incorporate the chord keyboard into a scanning grid, so that it replaces one of the rows. In this way, the user can easily pass the chord keys, and get to functions such as predicted words or shift keys.

Another chord keyboard that works very well is the Microwriter keyboard. This uses 5 keys, one for each finger of the hand. The code is based roughly on the shapes of the letters, and is one of the easiest of all codes to learn.

Disambiguation

Oh, what a lovely word! This is the code that you do not need to learn. Disambiguation uses a smaller number of cells, or keys, to represent the entire alphabet. Each cell contains a number of characters, normally three. All that is necessary is to select the cells that contain the letters you need. The software then works out which possible letter combinations could be the start of a real word, and gives the user a set of predictions based on these.

The main advantage of disambiguation to a switch user is the ability to scan the alphabet on a grid of 9 cells instead of 26, greatly reducing the scanning time for each character.

For example, imagine that the first cell contained the letters ABC and the second cell contained DEF. If we wish to spell the word "BED", we would choose 1-2-2. (In reality, you can achieve a far higher efficiency by arranging the letters differently).

When cell 1 is selected, the system knows that the word will begin with either A, B or C and will suggest some words beginning with these letters. Then cell 2 is selected. The system now tries to predict words beginning with AD AE AF BD BE etc. Already, some of the combinations are impossible. By the time we have selected a third cell, most combinations will no longer match any words in the dictionary and can be ignored by the system. The ambiguous selection ceases to be ambiguous when enough selections have been made.

Of course, many words (especially short ones) will still be ambiguous when all the characters have been selected. For this reason, word prediction is especially important here. As well as allowing the user to complete a word before all the letters have been selected, it solves the problem of more than one word still being available if all the selections have been made.

Thinking Dynamically

The way that the grid is laid out makes a big difference to the efficiency with which an item may be retrieved. It should be obvious that the most commonly required items in each grid are placed close to the start of the scan. However, there are other issues.

Grid size

The size of the scanning grid has a direct bearing on the efficiency of the layout. Symbol users in particular need quick access to a large number of cells as each cell will typically represent a word. Many people make the erroneous assumption that the more cells that you can fit onto each grid, the more quickly the user can find the desired function. Nothing could be further from the truth. Even those who have realised that smaller scanning grids lead to greater efficiency rarely appreciate just how big the difference can be. Let us do some simple arithmetic.

On a grid of 128 cells, you may find 8 rows of 16 symbols. Using a row/column method you would need 22 scans (7 + 15) to cover all the symbols. So waiting for 22 "beeps" gives you the choice of 128 locations.

Now try reducing the grid to 24 (4 rows of 6). We now need only 8 scans (3 + 7) to cover each grid, so you can scan three grids in the same time. This gives access to nearly fourteen thousand symbols for the same amount of scanning!

It is highly unlikely that anyone would try to use a simple forward scan on a grid as large as 128 but, just for fun, let us see how many locations we could find in a 24 cell dynamic array with 127 scans. The answer is 5 layers and just under eight million locations!

Of course, these numbers do not mean that much, as many cells will contain common tools and others will contain nothing at all as a logical distribution of vocabulary will not fit neatly into equally sized blocks. Nonetheless, the message is clear; more layers equals faster access, provided that the user always knows where to find the desired symbol.

Pop-ups

A pop-up is a grid that is reached from a cell in another grid, thus effectively providing several cells in one location on the main grid. The essential difference between a normal grid and a pop-up is that the pop-up will send us back to the main grid as soon as a selection has been made.

A good example of a pop-up is a colour cell. Let us say that we have a grid dedicated to the choice of clothing for the day.

continued on page 16...

Auditory Scanning: An Access Technique

by Sally Townend

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

What is Auditory Scanning?

Auditory scanning is a technique where the selection set is presented auditorily (e.g. read aloud) for the person with the disability. He or she uses a predetermined signal such as a vocalisation or a press of a switch to identify the desired item.

Auditory scanning can be achieved through using no technology, light technology or high technology.

Who can benefit from Auditory Scanning?

Initially auditory scanning was developed to give access to individuals with a severe physical and communication disability with an additional visual impairment.

However it also a useful technique to consider for individuals with a severe physical disability who also have difficulty in co-ordinating 'looking' with the physical movement required for accessing the desired item i.e. pointing to a symbol or hitting the switch whilst watching a visual scan.

Methods of Auditory Scanning

No Tech

This is a method of auditory scanning using no equipment and is known as *partner assisted auditory scanning*. A very simple and commonly used form of partner assisted auditory scanning is for the communication partner to ask yes/no questions e.g. *"Do you want a cup of tea?"* And wait for the users yes / no response before asking the next question "Do you want a cup of coffee?". A more advanced version of partner assisted auditory scanning is to present the options in a linear scan e.g. *"What do you want to drink? Tea? Coffee? Blackcurrant? Gin and Tonic?"*. The communication partner will speak the options with a pause in-between each option giving the user the opportunity to indicate if that is the one they want through a movement or vocalisation.

Both versions rely entirely upon the options presented by the communication partners which will be determined by their familiarity with the user and their reading of the situation. No consistent pattern is followed for the user to predict what is coming next.

Light Tech

This is a method of auditory scanning that uses partner assisted scanning in a more formal way. The communication partner reads out the choices set out on a paper based communication board or book. The partner pauses between each option waiting for the user to indicate if that's the one they want through a movement or vocalisation.

The vocabulary can be organised into categories and then subcategories to enhance the speed of communication. In this way the user becomes familiar with the vocabulary available to them and is not dependent upon the communication partner thinking up the right questions to ask. The book can be set up so there are auditory cues to be spoken but if selected the fuller message is then spoken by the communication partner.

High Tech

This is a method of auditory scanning that is provided by a high tech device e.g. computer with appropriate software or Voice Output Communication Aid (VOCA). In this instance instead of a human voice speaking the choices the user listens to the auditory cues given by the device (digitised or synthetic speech) and selects their choice by pressing the switch and the message is then spoken by the device.

On most devices the scan can be set up either:

- to be automatic scan (one switch) where the computer automatically speaks the options and the user presses their switch when they hear the auditory cue for the desired message

or

- to be a two switch step scan where the one switch will move the scan to the next option and the second switch will make the selection.

Auditory cues can be set up to be 'a portion of the message (content cue)'; 'name of the symbol / icon' or 'co-ordinate location of the symbol (row 3 column h)'.

Disadvantages of Auditory Scanning

- Limiting
- Slow
- Disruptive to others in the environment (unless an earpiece or headphones are used).

Advantages of Auditory Scanning

- Often the only way an individual can communicate
- Gives a more successful access method for an individual to access curriculum work

Auditory Scanning and Curriculum access

There is a range of software that can provide an auditory scan to allow individuals using auditory scanning to access curriculum work.

Software that provides options for auditory scanning include:

- Switch Clicker Plus / Switch Clicker 3
- Writing with Symbols 2000 / Inclusive Writer
- Click IT
- Discover Switch

For example within Switch Clicker 3 a grid could be set up to contain the words required to record the results of an experiment. The words can be scanned using an auditory scan and the user can select the correct words one at a time to complete the sentences required to record the results of the experiment.

Auditory Scanning and AAC Systems

Most AAC systems are "visual language" systems i.e. they rely on the user being able to identify a visual cue to access a message. Although these can be made more accessible by implementing visual enhancing strategies developing auditory scanning for an individual may be a more successful option.

At present utilising auditory scanning with an AAC system involves converting these visual language systems to a system that can be used without vision. In doing this there are still a lot of questions we need to ask ourselves and explore further including:

- What should the auditory cue say?
- Is there a hierarchy of representational skills for an individual developing auditory scanning. Is this related to the amount of auditory information given i.e. is less auditory information (cue) required as representational skills increase?
- What is the effect of putting auditory cues on to different visual language systems i.e. hear one cue that represents multiple associated meanings as in a Minspeak system. Can the individual obtain all the associated meanings of an icon when the visual symbol can not be seen?
- Is auditory scanning based on categories mean more to the user and if so which method of categorising is most useful? How can it be made logical and meaningful so the user can learn to predict cues?
- How many selections is it reasonable to expect an individual have to make to reach a desired message?

When selecting an appropriate VOCA there are a number features that need to be considered. These include:

- Does it have a different voice and volume control for the auditory cue
- Can the auditory cue to be spoken through a pillow speaker or earpiece
- Can the vocabulary be organised to suit the individual user
- Can the auditory cue be customised
- What visual enhancements can be achieve

Although at present there is little information available to help us implement AAC systems using auditory scanning, there are some individuals successfully using auditory scanning as a selection method. Therefore, we should be prepared to give it a go as a technique for accessing AAC systems and share the experiences so we can uncover some of the critical components of success. In this way we can hopefully develop better strategies for implementation of such system.

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Web site (and Listserv):
http://espse.ed.psu.edu/SPLED/McN/auditoryscanning/home.html

Speeding Up Switch Input ...continued from page 14

We will need sentence starters, the names of various items of clothing, and details of the clothes, including their colours. This could be a very crowded grid, and there may not be room for all the colours. So instead, we have a single cell marked "colour".

Another use of pop-ups is to modify verbs. One implementation allows the user to select the verb first, and then to choose a modifier cell to call the pop-up with alternative forms of the verb. A better way is to have a single cell with the root of the verb, and use it to call the pop-up. This saves on the amount of scanning as well as the amount of the master cell that is taken up.

Switch Training

A major problem with severely disabled children who need to use switches to access computers and communication aids is motivating them to become efficient in the use of switches.

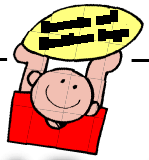
Acquiring good switch skills is as important to these children as the use of a pen is to an able bodied child. The trouble is that there is so little that they can use to learn this vitally important skill. Most early switch training programs are suitable only for the very young, while the on-screen keyboards and communication software that they will later be using are as yet too advanced and also, require good switch skills to use effectively. We have compiled a CD ROM of useful software for switch training.

Conclusion

In this paper, we have looked at some of the many ways in which the simple idea of switch access can be refined to allow the user to work faster and better. We have tried to concentrate on those methods that are less well known.

There is now a wider range of switch software than ever before, and choosing a suitable program has become more difficult. When considering switch software, try to look beyond the pretty screens and consider how well the programs cope with the very special needs of switch users.

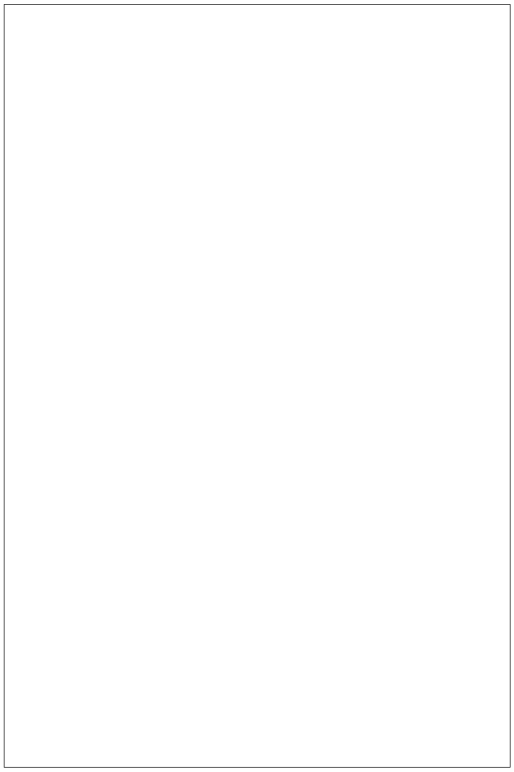
Paul Hawes, Sensory Software
Paul Blenkhorn, University of Manchester Institute of Science and Technology



Parents and Enablers Page

by Katie Clarke

Nadia is using her communication aid more and more - although, heavens above, it is still not mounted to her manual or electric wheelchair. Each day it is carried cautiously on the back of her wheelchair along bumpy cobbled streets and up some of Halifax's steepest rows of terraced houses, to and fro from home to school. Walking to school is more like an army combat course with the children's backpacks, lunch boxes, Dynavox and battery, plus the brigade of children. We are not easily missed!



Nadia with her Dynavox

Our man of the year at the moment is Graeme - our technical support for the Hearing Impaired Service - who seems to be developing an attachment to the Dynavox. However, luckily I do not have to drag him up hills on the way to school. For someone who is so hopeless with computers that I have to ask my 9 year old son to help his younger sisters to put the CD in the 'thingy', Graeme is now my hero. I have programmed the Dynavox for about four years on my own and usually after 11pm without ever having read the manual! This means that I have meandered around the system - often forgetting how I did something, so would then have to go to great lengths of time to try and find out how to do it again. I seem to do things the long and, so often, the wrong way round.

I have not, *of course,* handed the Dynavox completely over lock, stock and barrel to Graeme so I still have the odd night battling with logic and buttons to put something on that Nadia has asked to be put on quickly. Now Nadia is also having a go at programming - she too has not read the manual but is much more technical than I am - and constantly knows just what to put on and where.

Pink is the Colour

Nadia has got a bright pink electric wheelchair from *Wizz Kidz* - she takes herself off to Brownies which should be a 5 minute walk but due to her inquisitiveness can be a 15 minute journey as she stops to look at just about everything from the dog poo on the corner of the street to the ice cream sign outside the shop. Then of course there are all the people she knows who say "hi" that she has to stop to grin at.

Nadia needs her communication aid attached to her Barbie pink motorised throne - but although Wizz Kidz have funded the wheelchair they will not fund the mounting system. With Sally Townend's (from The ACE Centre North) support this is something that we are looking into as there must be other kids out there who now or in the future will be needing a communication aid attached to their charity funded mobility aid. I will keep you posted on any future developments.

Family Weekend

In the meantime Tamsin Crothers and I have regular telephone planning meetings for our Family Weekend. It is going to be held at the Norbreck Castle Hotel in Blackpool on 24-26 November 2000 and will be a fun and communicative weekend for all who attend. Hopefully, there will be 10 families and a heap of volunteers to give a hand. Many of our young AAC users are isolated and do not get the chance to meet other kids using communication aids.

Families need a lot of support, information and advice for their children to become competent users. We have asked four adult users to help us with the weekend and for them to be around to act as role models.

Anyone wanting to know more about the weekend should get in touch with me as soon as possible (tel: 01422 341578).

Meanwhile, I hope to see you in Lancaster at the CM2000 National Symposium in September.

Trustees News

from Janet Scott
Chair of Communication Matters / ISAAC-UK

ISAAC Board Meeting

As I am writing this, Gerald Masterson is on his way over to Washington DC for his first ISAAC Board meeting next week. He is representing *Communication Matters,* and especially the views and interests of AAC users, on an international level. Janet Larcher, Chair of the ISAAC Board, and I will be joining him across the pond tomorrow.

However it's not all foreign travel for your hard working Trustees! We have been very busy on your behalf over the past few months...

CM2000 National Symposium

This year's Symposium is on course for being its usual successful, informative and enjoyable event. An exciting academic and social programme has been drawn up, with a full trade and suppliers' exhibition.

This year's conference has a truly international flavour with speakers from Australia, Belgium and Sweden. Mats Granlund is our invited keynote speaker.

At the conference we will announce the winner of this year's Distinguished AAC User Award – who will also present his/her paper. We will also be announcing the winner(s) of a new award – the AAC User Achievement Award.

We have even begun to think about 2001 and have our keynote speaker booked already! Special thanks must go to Colin Clayton for all the hard work he puts in to organising the annual symposium – this is his 10th (!) and very sadly his last (he actually wants to be able to come along next year and enjoy himself!).

Three Year Plan

Over this past year we have been busy drawing up a Three Year Plan for 2000–2003. We hope to be able to present this to you at the AGM during the Symposium in September.

CM Small Grants

We have had two successful applications for the first round of CM Small Grants (more information about these projects at the AGM).

AGM

Don't forget to come along to the *Communication Matters* AGM on Sunday 17 September at 6.30pm and make your voice heard. Remember – we are looking for new Trustees, so do ring us on 0870 606 5463 if you are interested. We've already had a couple of people volunteering!

I'm looking forward to meeting old friends again at the conference in September – and to making lots of new ones.

See you in Lancaster!

News from CASC

Communication Aid Suppliers Consortium

Since the last CM Journal, there have been well attended **CASC Road Shows** in Cambridge, Loughborough, Salford, Inverness, Edinburgh, Glasgow, Portsmouth and Bristol - phew! More are planned for the Autumn, and we even have a couple of date for next year...

CASC Road Shows - Autumn 2000

Please make a note of any CASC Road Shows coming to your area - do contact Patrick Poon at *Communication Matters* (Tel: 0870 606 5463) for further information.

Oct	4	**Oxford** - ACE Centre
Nov	9	**Oldham** - ACE Centre North
Nov	16	**London** - Institute of Child Health

And advance notice for 2001:

May	1	**Newcastle** - Communicate
May	2	**Edinburgh** - CALL Centre

Can you help host a CASC Road Show in your area?

We are always looking for new venues, so if you would like to host a Road Show (or know a local centre which might be interested), please contact Patrick Poon, the Road Show Organiser (Tel: 0870 606 5463) who would be delighted to discuss this further. Remember, CASC will pay for hiring a suitable venue, lunch and refreshments, and help to draw up a programme and draft publicity material.

Web Site & Contact

To get an up-to-date list of the CASC Road Shows and brief information on each CASC member and a link to their Website, please visit the Communication Matters Website at *www.communicationmatters.org.uk*

For more information about CASC, ring Patrick Poon on Tel. 0870 606 5463 or Email: admin@communicationmatters.org.uk, or ring Simon Churchill (Chair of CASC) on Tel. 01962 842792 or Email: simon_churchill@compuserve.com

Do You Need a Small Grant?

Communication Matters welcome applications for small grants. Consideration will be given to applications for projects or activities that further the aims of Communication Matters. Examples include:

- the costs of organising an **AAC User event,** or travel expenses to get to one
- the costs of publishing an **information leaflet**
- the costs of a **social research project**

The applications will be reviewed by the Small Grants Committee and an external reviewer, and the decision of the Committee will be ratified by the Trustees in June and September.

For an application form or more information, contact CM Tel: 0870 606 5463 Fax: 0131 555 3279 Email: admin@communicationmatters.org.uk

STOP...PRESS...STOP...PRESS...STOP...PRESS...STOP...PRESS...

CAC Merges Activities with Possum

On 2 June 2000 Cambridge Adaptive Communication Ltd merged with Possum Controls Ltd to become an exciting new force in the electronic assistive technology field. The new organisation will combine CAC's imagination, enthusiasm and knowledge of AAC with Possum's leading position in the environmental control market and strong organisation – including excellent support and service delivery systems.

Possum Controls has provided environmental control products and services to the NHS since 1961. The Possum range of infra-red home automation equipment is fully compatible with the GEWA Prog transmitter fitted to CAC's latest Cameleon 3, resulting in a seamless combination of augmentative communication and environmental control. A great opportunity now exists for CAC's users to gain full access to communication *and* environmental control. Possum field service engineers are located throughout the UK, providing installation, service and support. Dedicated technical support lines and a computerised customer contact system ensure that the best possible service is provided to Possum's users. This support network will soon be available to CAC's customers. For further information, contact CAC on Tel: 01223 264244.

ORAC & Eclipse – Under Old Management!

Many people will have learnt by now that Mardis ceased trading in April and closed down at 31 May 2000. Morphonics have taken over all repair commitments for the ORAC and Eclipse systems, both in and out of warranty. Morphonics have licensed the Eclipse from Lancaster University and will be continuing production and sales of the Eclipse communication system. Morphonics will also be continuing to supply ORAC accessories for users of that system.

So who are Morphonics? Two years ago, Rob Zloch and Neil Parry were made redundant from Mardis when it was decided that Mardis would no longer maintain the strong technical side it had previously had, and would instead concentrate on sales. Zloch and Parry decided to stay in the AAC field and set up Morphonics as a company that would design and develop state-of-the-art new communication aids. They had intended to show an early version of their new device at this year's *Communication Matters* CM2000 National Symposium in September but this is most unlikely now and first announcements are likely nearer the end of the year.

Zloch and Parry were the original co-founders of Mardis at Lancaster University in 1986 and were the design team that developed the hardware and software for both the ORAC and Eclipse communication systems (some may recognise Zloch's dulcet tones recorded in the lower, standard quality speech for the Eclipse Talking Menu). Those that remember Zloch and Parry will know of their strong commitment to providing a first class service whether it be telephone support or machine repairs. Zloch said, "We hope that existing users of these machines who do not know us will be reassured that support of their equipment could not be in better hands. We also hope that anyone considering using an Eclipse system in the future will be similarly reassured."

"We understand there have been some production problems in our absence and our first priority is to rectify these and ensure that the Eclipse system is as reliable as it was designed to be", Zloch added. It was this designed reliability that originally prompted Mardis to offer a Two Year Guarantee with every machine. It is obviously in Morphonics' best interests to make sure that machines do not have to come back for repair unnecessarily. Anyone who has a problem with an ORAC or an Eclipse should always first telephone Morphonics so that it can establish if anything can be done over the telephone. Instructions on subsequent procedures can also be given then.

"On a personal note may I take this opportunity to express our delight at once again having responsibility for our two design 'offspring' and our pleasure in being able to serve the users of these systems again", said Zloch.

Morphonics have plans to further develop the Eclipse system in due course for both the UK and overseas communities. For more information, contact: Morphonics, 5 Sharpes Mill, White Cross, South Road, Lancaster LA1 4XQ Tel: 01524 848373 Fax: 01524 848598 Email: morphonics@lineone.net

WriteAway's 'Group Match' Scheme

People with multiple disabilities will soon be able to communicate with each other thanks to an innovative scheme launched in June by Write Away, the only national penfriend scheme for disabled people. Groups of adults will be put in touch with each other via the Group Match scheme, communicating in a variety of ways - videos, E-mail, artwork, audio tapes or letters. Alison Futerman, a Communication Matters Trustee, has been participating in the setting up of the Group Match Scheme.

Write Away will send each group a pack containing communication materials, introductions to various types of communication, such as Makaton symbols, art, speech therapy and computer adaptation. Packs will also contain a list of useful contact details. The scheme is particularly aimed at people with multiple disabilities but is open to any group of people with a disability. Groups may come from colleges, day centres, residential homes, social clubs or hospitals.

"We believe that the Group Match scheme will enable people to communicate with each other in ways that many would have thought impossible", said Jamie Renton, Director of Write Away's Adult Services. For further information please contact: Jamie Renton, Write Away, 1 Thorpe Close, London, W10 5XL. Tel: 020 8964 4225. Fax: 020 8964 3532. E-mail: GroupMatch@writeaway.demon.co.uk

STOP...PRESS...STOP...PRESS...STOP...PRESS...STOP...PRESS...

Diary Dates

Picture Exchange Communication (PECS)
A Series of Two-day Workshops around the UK. Contact: Phoebe Haughton on 01273 728888 Web: www.pecs-uk.com

14 September 2000 CALL Centre, Edinburgh
Clicker Information Day at CALL Centre
FREE; register by phoning Crick Software on 01604 671691

14 September 2000 ACE Centre North, Oldham
How to Decide on an AAC System (Assessment)
Cost: £100 (full day) Contact: Lisa Kelly Tel: 0161 627 1358

17-19 September 2000 Lancaster
Communication Matters AGM & Symposium
Venue: Lancaster University Tel: 0870 606 5463

19 September & 2 November 2000 AbilityNet, London
Enabling Technology for Life
Cost: £50+VAT Contact: Tricia Tel: 01926 312847

20 September 2000 AbilityNet, London
Enabling Technology Low Cost, No Cost!
Cost: £70+VAT Contact: Tricia Tel: 01926 312847

27 September 2000 ACE Centre North, Oldham
Getting to Grips with Boardmaker
Cost: £50 (half day) Contact: Lisa Kelly Tel: 0161 627 1358

Wednesday PM's 4 Oct to 29 Nov 2000 ACE Centre North, Oldham
Accredited Module - Assistive Technology for Learners with a Physical and/or Communication Disability
Cost: £250 (for module) Contact: Lisa Kelly 0161 627 1358

4 October 2000 ACE Centre, Oxford
CASC Road Show at ACE Centre, Oxford
FREE; Contact: ACE Centre Tel: 01865 759800

9 October 2000 AbilityNet, Warwick
Using Computers as Communication Aids
Cost: £70+VAT Contact: Tricia Tel: 01926 312847

10 October 2000 ACE Centre North, Oldham
How to use Clicker 3/4
Cost: £100 (full day) Contact: Lisa Kelly Tel: 0161 627 1358

16 October 2000 ACE Centre, Oxford
Voice Recognition and Special Needs
Venue: ACE Centre Contact: CENTRA Tel: 01257 241428

18 October 2000 AbilityNet, Warwick
Computers and Dyslexia
Cost: £70+VAT Contact: Tricia Tel: 01926 312847

19 October 2000 ACE Centre North, Oldham
Contributing to an Effective AAC Policy
Cost: £50 (half day) Contact: Lisa Kelly Tel: 0161 627 1358

26 October 2000 CALL Centre, Edinburgh
Speech Recognition for Pupils with Special Ed. Needs
Cost: £45 Contact: CALL Centre Tel: 0131 651 6235

26 October 2000 AFASIC, London
Functional Language at Home and School
Contact Email: carol.afasic@lingwoods.demon.co.uk

2 November 2000 Aberdeen
***AAC 2000:* Practical Approaches to AAC**
Study Day & Exhibition organised by *Augmentative Communication in Practice: Scotland* Venue: Aberdeen Exhibition & Conf. Centre; Prices & details from: SCTCI 0141 201 2619

3 November 2000 Worthing, W Sussex
AAC: A Practical Development Course
Cost: £60 Contact: Joan Upton, Worthing Priority Care NHS Trust Tel: 01903 843143

7 November 2000 ACE Centre North, Oldham
Developing Age Appropriate Cause and Effect Activities
Cost: £100 (full day) Contact: Lisa Kelly Tel: 0161 627 1358

9 November 2000 ACE Centre North, Oldham
CASC Road Show at ACE Centre North, Oldham
FREE; Contact: ACE Centre North 0161 627 1358

9 November 2000 AbilityNet, London
Disability, Computing and the Internet
Cost: £70+VAT Contact: Tricia Tel: 01926 312847

16 November 2000 Institute of Child Health, London
CASC Road Show at Institute of Child Health
FREE; Contact: Colin Clayton Tel: 0207 837 7618

30 November 2000 CALL Centre, Edinburgh
Using Boardmaker (PC & Macintosh) Hands-on Day
Cost: £45 Contact: CALL Centre Tel: 0131 651 6235

30 November 2000 AbilityNet, London
Computers and Adults with Learning Difficulties
Cost: £70+VAT Contact: Tricia Tel: 01926 312847

6 December 2000 ACE Centre North, Oldham
Switched On! Maximising Success for a Switch User
Cost: £100 (full day) Contact: Lisa Kelly Tel: 0161 627 1358

Video as a Record of Achievement

by Cheryl Davies

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Using a video interview as a record of achievement began at Portland College in 1995 in part as recognition of the accomplishments of students using voice output communication aids. This paper describes the format, the rationale and discuss observations.

The student group

Portland College is a residential Further Education college for people with disabilities. For some students their primary learning goal is to improve their communication skills using alternative or augmentative communication (AAC). On average there are 25 AAC users each year, aged 16-25 years and they attend college for one to four years, generally for three years. They use a range of high tech devices including: Liberators, Delta Talkers, Cameleons, Dynavox and DynaMyte. Those using Lightwriters have not been included for videoing. Some have individual programmes while most use trademarked programmes such as Language, Learning and Living (LLL), Word Strategy, Ingfield Dynamic Vocabulary and Gateway.

The students attend on average 3 teaching sessions with a Communication tutor and speech and language therapy either individually and/or in a group. The students have varying knowledge of their aid and programme and present with a range of social communication skills.

Format of Video Session

Each student is videoed annually and this is recorded onto full length videotape. An assistant or volunteer operates the camera and the same speech and language therapist conducts the interview to maintain a consistent approach. The therapist may or may not work with the student at other times. It is not a usual teaching or therapy session.

From the initial video sessions a format has been devised that can be replicated. Although it is reviewed at intervals, it has only been altered for one or two students. Students in their first year at college are generally videoed during their third term if an AAC device has recently been introduced. For established students the aim is for twelve-month intervals.

To start: Camera operator to zoom in on aid to see overlay.

Then : Student to demonstrate accessing method.

Procedure

- Therapist to give introduction and explain what we are doing and why.
- Student to be asked:
    1. *"If visitors come in how would you greet them and introduce yourself?"*
    2. *"Can you tell me where you come from?"*
    3. *"Count to five"*
    4. *"Say the days of the week."*
    5. *"Can you describe this picture (Cookie Theft)? - camera to focus on. Prompt, "Anything else?"*
    6. *"Can you tell me about your family?"*
    7. *"What did you do last night?"*
    8. *"Have you anything planned for the weekend?"*
- Therapist to pause. If no response, say *"I'm doing something really exciting this weekend."*
- Thank the student for their co-operation.

This procedure was chosen to give all students success. It accesses a range of familiar vocabulary, a sequenced set of vocabulary e.g. LLL days of the week, asks about a future and past event, a picture description, a structured conversation and, by pausing, gives time for initiation. Little or no prompting is given.

The video is later watched and transcribed, often with the student present. Observations can be discussed and future therapy/teaching plans noted.

The aims are to observe and record:

- accessing method
- speed of access
- interactive skills: eye contact, turn taking
- knowledge of vocabulary
- sentence building
- repair strategies
- ambiguities
- initiation of conversation
- level of prompting required

Discussion

Students' Record of Achievement videos have been recorded for the past four years.

Below are some of the measures we have made, including changes to clinical practice from observations made:

- Time and compare access speeds. For one student with direct but very slow access, we would not have noticed a change. For another, we could judge the difference between two devices as they had transferred from a Dynavox to a Cameleon between recordings.
- Developments in linguistic competence. Having a transcription allows for immediate comparison.

Lightwriter (Toby Churchill) Advertisement

Video Record of Achievement...continued from previous page

- Question when there has been no change. For example, one student learning AAC to augment speech, on two occasions used the VOCA to introduce themself but at no other time during the recording. This lead to intensive vocabulary teaching sessions and has since changed again to focus on giving clues for when not understood.
- Changes in pragmatic skills. One student developed from not wanting to know what I was doing at the weekend to asking questions and making comments to maintain the conversation.
- Observe therapist interaction. I became aware that I did not give a student time to use the speak display function when he had slowly built up a long sentence.
- Can be edited and used for training sessions.
- It could be used for more formal research.
- Observe if taught strategies are being used, such as indicating access errors.
- The video can be used to help staff in different establishments after the student leaves college.

In conclusion

Although videoing is a labour and time intensive activity the advantages of such a record are tangible and measurable. This format could be used in a range of educational, assessment and therapy settings and could be modified to suit different client groups. The students at Portland College take the video when they leave as their Record of Achievement.

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TANA TALK Advertisement

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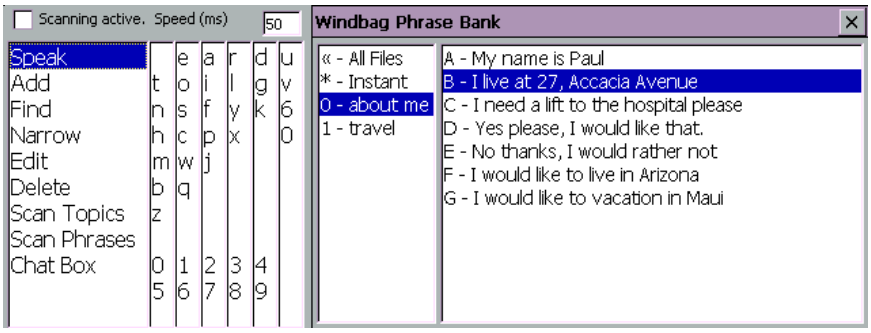

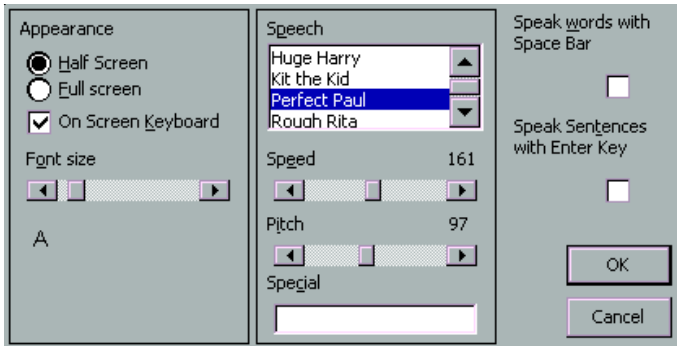

Simple setup screen provides easy configuration for a variety of machine types and user needs

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Respite Review: Obtaining the Views of the Users

by Linda Brown, Morag Dendy and Joan Murphy

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Introduction

In June 1998 North Lanarkshire Council Social Work Department established a short life working group to consider how the department might ensure best value and comment on the quality and gaps in relation to the resources available for the provision of respite care and short breaks for children, young people and adults with a learning disability and their carers. The group were charged with the task of making recommendations on priorities and future direction of service provision.

In order to obtain the views of service users it was decided to make use of a low tech communication framework, *Talking Mats* which has been developed by Joan Murphy, Research Speech and Language Therapist, at the University of Stirling.

About Talking Mats

Talking Mats is a framework that uses picture symbols to help people including those with severe communication difficulties communicate about particular issues relevant to them. It can be used with a wide range of people with communication difficulties and is an approach that can help people think about issues in a different way and provide them with a means of expressing their views more easily.

The basic idea consists of three sets of picture symbols being presented to the interviewee by attaching them to textured mats. The tree sets of picture symbols are used to

1. Illustrate the **issues** that are important for inclusion in the subsequent interview.
2. Depict different **emotions** in order to allow participants to indicate their feelings.
3. Represent possible positive and negative **factors** relating to each issue.

Participants

Altogether 35 service users were consulted: 25 adults and 10 young people. There were 4 different residential respite units as well as Shared Care used by the participants. Respondents were asked to focus on one service of their choice if more than one resource was used. The consultations were carried out by a variety of area team staff including social workers, social work assistants, care managers and day care staff. Two briefing sessions were organised to familiarise staff with the *Talking Mats* framework.

Results

The areas surveyed were: whether individuals were given choice over when and where to go for short breaks; during periods of respite, what they felt about a range of activities both within the units and outdoors; relationships and communication with other service users and with staff; environment and physical layout of the unit; assistance with personal care; future developments including other ways of spending time or having a break.

- **Choice over where to go and when** - the majority of people indicated that they were not given any choice over where or when they had respite even though they were clearly able to express their views in other areas. One participant felt particularly angry about this.
- **Activities (outdoor)** - in general people seemed to participate in and enjoy a wide variety of activities. Specific concerns were expressed by a small number of people relating to going out in groups and some described activities they would like to do but which were not available to them e.g. swimming, horse riding, fishing and visiting friends.
- **Activities (indoor)** - a significant number of people clearly did not enjoy board games and jigsaws. People commented that they did not get the access to the telephone that they wanted.
- **People** - many people commented that they did not have a particular friend in respite and several said that on each occasion there were a number of other residents they felt negative about. Most people like the staff but some felt that staff did not always listen to them. There were particular issues raised in relations to sibling groups attending at the same time. They stated they felt responsible and would rather not go to respite with their sibling.
- **Premises** - there were a lot of negative comments about noise some of which were linked to negative comments about indoor activities. Other remarks included complaints about lack of privacy from other residents, having to share a room, access within the building, access to the telephone, being too hot, being too cold; not liking the toilet; light switch being outside the toilet; not getting enough to eat.
- **Personal care** - there were many more positive than negative comments about personal care and many people felt they did not require a high level of personal care. There

continued on next page...

Respite Review...continued from previous page

were comments from some people that they would like more independence e.g. making a cup of tea for themselves; not doing things in a group.

- **Other ways of spending time / having a break** - people had lots of positive ideas. A significant number said they wanted to go on holiday with lots of suggestions about places (Australia, Hawaii, Tenerife, Blackpool, Dunoon) and people (friends, family). Another idea people were positive about was having someone to help them do the things they want to do. One person said specifically that no-one had ever asked before about other ways of having a break.

Conclusion

This has been a very successful consultation exercise which has genuinely allowed people with a learning disability to consider and share their views on respite. Overall people had positive feelings about respite. Where there were negative comments, it is important to note that they would all make a significant impact on the quality of people's experience in respite and thus require action. Whilst some appear to be fairly straightforward to resolve, assuming that the principles of a person centred approach are adopted, other issues raised reflect the limitations created by services designed for group living.

The qualitative information and genuine feel of the person generated through the use of Talking Mats highlights the potential to explore its wider and ongoing application in planning and evaluating individual periods of respite.

Linda Brown & Morag Dendy, North Lanarkshire Social Work Department
Joan Murphy, AAC Research Unit, Psychology Dept, University of Stirling, Stirling, FK9 4LA

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Murphy, J. (1998) Talking Mats: Speech and Language Research in Practice. *Speech and Language Therapy in Practice,* Autumn 1998, 11-14.

Murphy, J. (1999) Enabling People with Motor Neurone Disease to Discuss their Quality of Life. *Communication Matters,* July 1999, 2-6.

Lord Mayor Treloar School: Discussion Group

by Pam Stevenson

On 3 May 2000, a group met to discuss issues arising from the increasing use of standard computer equipment to run communication software. We felt that a number of problems were not being fully addressed; in particular aspects of reliability and support. We spent the morning session looking at some new tablet, laptop and palm equipment. In the afternoon we held a discussion about this equipment, and dedicated communication aid equipment. A summary follows.

- We agreed that the standard of backup services provided by suppliers of dedicated equipment varies widely. It ranges from the very well organised 'rescue' service provided (at a cost) by Liberator through which a machine is loaned, usually within 24 hours, if a problem arises that cannot be dealt with over the phone by the indefatigable Bob Blackburn (now sadly made redundant). At the other end of the continuum, we felt that some other companies still have a long way to go if they are to provide a service that meets the needs of users. The group agreed that a user should not be left without communication equipment for more than 24 hours.
- The group decided to approach the Chair of Communication Matters to request an extension of the use of CM's web 'notice board' page. Users, or those supporting them, could post notices about problems with equipment, which might help to highlight common patterns. In this small and specialised market, we have seen that it is often the users who carry out software beta testing for the developers, in practice, and bugs that would never have seen the light of day on mass market office equipment, end up creating confusion for communication equipment users and their helpers. The same web-based 'notice board' could be also used by suppliers to disseminate solutions to common problems, and to alert customers to software glitches.
- Switch connections are still rudimentary on many devices, leading to the need for frequent repairs, replacement of switch sockets etc. The group looked forward to a 'wireless' (infra red) future. In the meantime, a more robust standard for switch plugs (rather than the 3.5mm jacks) would be micro miniature coax connectors. These, though marginally more expensive, are of military specification and would reduce the number of breakages.
- Screens on dynamic display equipment vary, with those on newer models of the Cameleon and the Dynavox a considerable improvement to those on older models. However it remains the case that no screen can be read in sunlight, or in certain overhead artificial light, and this poses a major problem for users. The technology is not yet available to provide sufficient battery power to resource improved back lighting that would enable the screen to be read in all lighting conditions.
- Dedicated communication equipment has a small market and is therefore expensive. Standard 'off the shelf' equipment, attractive because of its relative cheapness and often faster processing speed, is beginning to be used to run a number of communication software programs, and we discussed the implications of this development. However, it was felt very strongly by those present that users should not have to rely for support on a 'mass market' help desk where waiting times are notoriously long.
- AbilityNet, who do provide software support, are marketing some neat new little machines. However if there were hardware problems these would have to be returned to the States for repair, which is obviously a drawback.
- There are concerns that standard equipment is not sufficiently robust. There is a need for improving water resistance on standard equipment. It may be possible to get 'ruggedised' machines, at a cost. The issue of 'stealability' also needs to be addressed. Laptops are very attractive to thieves because they can be easily disposed of. There are reports of users having laptops stolen from their wheelchairs and this trauma must be avoided by somehow customising the machines.

In conclusion we are concerned that the provision of standard equipment should be carefully monitored, and that manufacturers and suppliers should take note of the concerns listed above. Is it better to have a Porsche that is rarely working for some reason or another, or a bicycle? For my money, it is the manufacturer who develops a reliable Ford Fiesta, with comprehensive insurance, service and training provision, having taken note of all the concerns listed above, who will really corner the market, and win the hearts and minds of users and their Speech and Language Therapists.

Pam Stevenson M.Sc. MCSLT
Head Speech and Language Therapist
Lord Mayor Treloar School

Participants

Gill Bushby, Special Needs Teacher, LMTS
Claire Chinnery, Specialist SLT, LMTS
Colin Clayton, Electronics Engineer, The Wolfson Centre
David Colven, Technical Officer, The ACE Centre
Sally Conner, Head SLT, Ingfield Manor School
Bill Hackney, IT Consultant, Ingfield Manor School
Philip Henderson, Special Needs Computer Specialist, LMTS
Janet Larcher, Consultant in Microtechnology Aids
Janet Lesley, Head SLT Dame Hannah Rogers School
Mark McConnell, Computer Systems Manager, Treloar Trust
Katie Price, Senior Specialist SLT, The Wolfson Centre
Julia Seward, Specialist SLT Lord Mayor Treloar College
Lynn Scott, AAC Co-ordinator LMTS and LMTNSC
Pam Stevenson, Head SLT, LMTS
Harry Wilson, IT Co-ordinator, LMTS

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Owning the Problem, Owning the Solution

by Lois Cameron

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Introduction

This article reviews the development of communication skills in a 38 year old man with cerebral palsy (athetosis). He was non-verbal and had been institutionalised since birth. He had significant challenging behaviour: self abuse, destroying articles of clothing, personal and ward belongings, lashing out at fellow residents and staff.

Bott, Farmer & Rhode (1997) identified a much higher incidence of challenging behaviour for those with learning disability and no speech than those who have speech. They stressed early intervention to support communication as a way of pre-empting behaviour problems. In this case the client had years of limitations on him imposed both by his physical disability but also by his emotional and developmental life history.

> *We cannot expect to change the communication skills of clients without first changing the behaviour of their primary partners.* *Cullen (1998)*

The quote from Lovett (1996) seemed apt for his circumstances, "Over time I have gradually come to see that people whose behaviour is difficult are not clients to be fixed so much as freedom fighters - the most vigorous critics of our service."

Previous attempts at developing his communication to a more appropriate and less challenging system had not been successful, he had learnt and used a few Makaton signs e.g. hello, good, yes, nurse. His physical movements were laboured and difficult so signing as a primary system of communication was not considered feasible.

The key question was, "was he rejecting symbols and pictures as a way of communicating altogether?" or "was he criticising the manner and focus of therapy?"

Speech and Language Therapy

There was recognition by speech and language therapy that "we cannot expect to change the communication skills of clients without first changing the behaviour of their primary partners." Cullen (1988) There was also recognition that in order that change occur there needs to be a commitment to that from the primary carers. The differences in perception between ward staff and the speech and language therapist about the degree to which communication contributed to his challenging behaviour made that difficult.

The focus of speech and language therapy initially was about giving 'quality time' and space to have his nonverbal communication positively listened and responded to. Any use of low tech Augmentative and Alternative communication support e.g. photos and symbols, only developed through that positive interaction and initially was very much a secondary focus of the sessions.

The principles of therapy were:

1. Positive interaction was the key and all communication would be responded to.
2. Choice was integral. From the start sessions would follow his lead. There would be an element of choice built in throughout.
3. The first symbols that were more formally taught were **stop** and **more.** This was fundamental as it allowed the client to control both the length of the activities and the duration of the session.

As this stage therapy was not particularly functional in that it did not relate to either his everyday needs or his daily environment. In order for therapy to be intensive the speech and language therapy assistant was trained to work with him and develop her communication skills to be highly responsive and non-directive. A symbol bank was gradually built up. This was dependent on the client's choices.

Training

Progress was slow and there grew an increasing chasm between the client's communication in therapy and his communication in the ward; finding the bridge across was the hardest job.

> *Staff started to commit to change and to seek training...*

The client did not use symbols on the ward. This was perceived by staff as his refusal to do so and shifting staff views to recognise their need to change and develop their communication skills to enable the client to use his system was the biggest challenge. In the end the client showed the way to achieve this.

A video of him taken in speech and language therapy started to shift their focus. Staff started to commit to change and to seek training that had been previously suggested but never embraced. It was now taken up enthusiastically.

continued on next page...

Owning the Problem...continued from previous page

Training was on two levels:

1. Skill based, teaching signing and symbols. This was for all staff and carried out mostly by the assistant and organised around shifts for both day and night staff.
2. Developing interaction at a more focused level. This was for key staff and involved videoing with personal feedback and communication goals set. Van Der Gang & Dormandy (1993) stress ongoing feedback as the most effective technique in training.

Four years later, where are we?

The client has a communication system with upward of 100 photos and symbols organised into different categories and displayed in plastic X-ray pockets (as shown in Figure 1).

It's highly portable and can be folded into a bum-bag for easy use. It operates on a windows type system. The client points to the topic and the communication partner gets out the symbols/photos for that topic. The client still lives in a ward and static topic charts are present e.g. for mealtimes, in the living room and his bedroom so that symbols are always easily accessible.

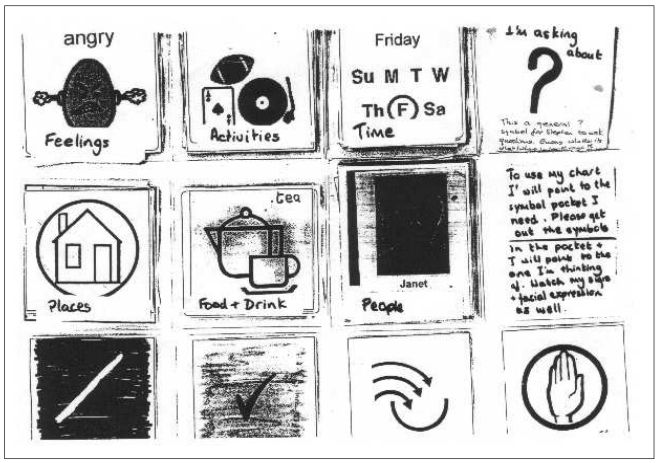

Figure 1 Example of X-ray Pockets

He uses his symbols to get a variety of messages and ideas across, for example:

- to say what is upsetting him
- to comment on what someone has said
- to state preferences
- to ask questions
- to joke

Using this system is slow and requires skill on the part of his communication partner. He finds initiation of movement difficult and tires easily. His ability to communicate is still variable because it is dependant on his physical state. Staff also use the system to orientate him to his day and discuss any changes or alterations to plans with him. He has an increasing number of signs - greetings and basic needs tend to be signed.

Challenging Behaviour

Given the links citied between challenging behaviour and communication difficulties and given an increase through low tech Alternative and Augmentative communication and signing of the client's ability to communicate has there been a corresponding reduction in challenging behaviour?

Nursing notes were looked at for a six month period since the commencement of this approach:

June to November 1996 - 66 incidents
June to November 1997 - 20 incidents
June to November 1998 - 36 incidents

Whilst it has not been a steady decline between the first and the last it has decreased significantly. There are difficulties in this analysis in that staff perception of challenging behaviour is subjective.

If you do not own the problem, you will not own the solution.

More compelling are the figures for replacing clothes which have been ripped. This had been a very frequent occurrence and between January and October 1997 £800 had been spent, £74 between October 1997 and June 1998, and two T-shirts replaced between July 1998 and March 1999. There has been a general acknowledgement that the client is much calmer and whilst there are still 'incidents' there tends to be a much clearer perception about the reason behind them.

Summary

The client's challenging behaviour has reduced and it is likely his development in communication strongly contributed. The key to this improvement appears to be the focus on interaction and giving the client control from the start over the change process.

This ownership of change was also important with staff, waiting for the time when they recognised the need to change and develop their communication skills increased the impact of training; if you do not own the problem, you will not own the solution.

Hopefully, the clients development in a period of institutional change and retraction will open doors for him to an improved quality of life and give opportunity for further change and growth.

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Two-Way Conversation Prediction:

Using Input from the Speaking Partner to Improve the Retrieval of Prestored Communication

by Andrew Judson, Ramanee Peiris and Annalu Waller

This paper was presented at the CM'99 National Symposium, Lancaster University, September 1999

Prediction techniques are used to improve both the rate of communication (Higgenbotham, 1992; Newell et al, 1992) and the pragmatic retrieval of prestored conversational utterances (Alm, 1993; Waller et al, 1998) in augmentative and alternative communication (AAC) devices. These prediction techniques are based on the way in which the individual non-speaking user uses the device over time. However, few systems take account of what is said by the speaking partner (Arnott et al, 1993).

This paper discusses research undertaken to evaluate the effect of using conversational input from the speaking partner to improve the prediction of conversational utterances in an AAC system.

Background

Non-speaking people use a variety of AAC systems. These range from light technology picture and symbol boards to high technology computer software that vocalise the words the user selects or types via a speech synthesiser. Many AAC users have language difficulties as well physical impairments. Systems therefore have to be designed to minimise the amount of physical and cognitive effort required of the user.

One such system, TalksBac, was developed specifically for adults with non-fluent aphasia (Waller et al, 1998). TalksBac is a knowledge-based system that uses knowledge of previous conversation trends to predict the order in which topics and utterances are presented to the user. The system searches a database of stored utterances to predict appropriate conversational output using a semantic network. TalksBac is word based. Users are required to select an umbrella topic and a subtopic before selecting a phrase or sentence to be spoken via the speech synthesiser. The choice of topics and utterances are predicted using frequency and recency information. Users select topic and retrieve utterances by clicking on the desired item with a mouse.

The Problem

TalksBac attempts to reduce the effort needed to select conversational items by predicting pre-stored utterances using information about past usage of the system. However, the system takes no account of the user's speaking partner speech. Although topic changes are made easier using knowledge of past conversations, more than double the usual number of mouse clicks is needed when a change in conversational topic is introduced by the speaking partner.

A Solution

A two-way prediction algorithm was developed which takes the speaking partner's conversation into account. A re-engineered version of TalksBac was developed to evaluate the effect of this algorithm on the suggested predictions. The 'two-way' TalksBac system allows sentences to be typed in by the speaking partner. (Although this information is currently entered via the keyboard, a positive outcome to this research may lead to speech recognition of the partner's conversation in the future.)

The automatic analysis of natural language is extremely complex. Various Natural Language Processing (NLP) techniques are applied to the problem of language perception. One area of research which has applied models of NLP is that of computer interviewing (Peiris, 1997). Computer interviewing aims to ask the interviewee appropriate questions depending on how previous questions have been answered. This enables the system to change the topic of the questioning in a similar way to free flow interviewing strategies. A similar approach was used to analyse the speaking partner's utterances with the aim of improving the accuracy of the conversational predictions.

A simple word matching algorithm was employed to test whether a two-way prediction system could improve the flow of the conversation (i.e. reduce the amount of mouse input from the person with non-fluent aphasia). The speaking partner's words were stripped of form words (e.g. "what", "and", 'I'). The remaining content words are compared with the user's topics and utterances to offer matching topics and utterances.

Evaluation

Five people from various backgrounds carried out evaluations on the system. Non-experts in HCI (Human Computer Interaction) did four evaluations and an expert did the remaining one. The non-experts included a non-computing student, a computing lecturer (the original developer of the TalksBac system), two speech and language therapists, and a special education teacher. The time scale of the project and the training requirements of people with non-fluent aphasia made it inappropriate to evaluate the system with 'real' users.

In order to acquire information from the evaluators efficiently, various techniques for the evaluations were used. For both the experts and non-expert evaluations a structured

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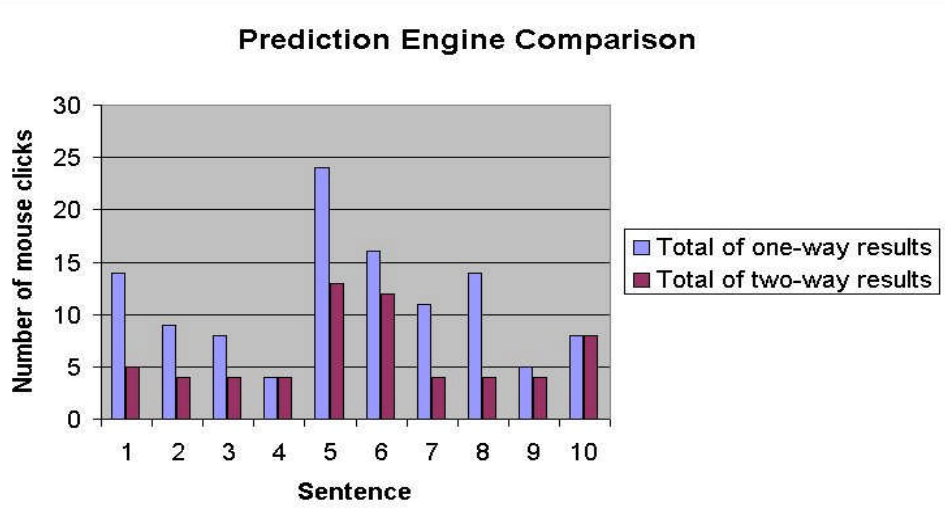
Conversation Prediction...continued from previous page

questionnaire was used in combination with a scale measure. The questionnaire asked general questions about each of the interfaces and the application as a whole. This information led to improvements in the interface.

The non-experts were also asked to carry out a role-play. This involved them pretending to be the person with non-fluent aphasia, having a conversation with the researcher. Due to the restraints on the number of utterances available and the content of the utterances, the conversation was limited to ten utterances, all of which were predetermined. The same ten utterances were used to measure both the one-way version of TalksBac (mid-way through the project) and the two-way version of TalksBac (end of the project). During the role-play the number of mouse clicks the evaluator used to find a suitable response to the utterance provided were counted. Figure 1 shows the total number of mouse clicks used to obtain the required utterance.

Figure 1 – Graph of the total number of mouse clicks used for each sentence.



Evaluations of the one-way system showed that the number of mouse clicks required to retrieve an utterance increased when there was an unpredicted change in the topic of conversation. The evaluation between the one-way and two-way systems shows that taking account of the partner interaction reduces the number of button clicks required to access target utterances, especially when the speaking partner introduces a change in topic of conversation.

Discussion and Conclusions

The introduction of a two-way prediction system allowed the system to take the speaking partner's contribution into consideration when retrieving utterances. The two-way prediction algorithm, although simple, has improved the system by reducing the number of mouse clicks required to retrieve utterances. However, the number of clicks is still reasonably large where changes in the topic of conversation occur.

A major drawback of the algorithm is its simplicity. The direct word matching method results in a reduced number of predictions than those returned by the one-way algorithm. The implementation of a more complex algorithm that uses more sophisticated NLP techniques could improve the prediction still further. In particular, recognition of questions could result in more suitable responses. For example the simple topic and word matching algorithm results in the prediction of similar sentences to a partner's input *"How are you?"* instead of sentences like *"I am well"* or *"I am feeling under the weather"*.

Although the improvement in the retrieval of utterances is to be welcomed, care must be taken to ensure that both partners have an equal control in the conversation. Conversation prediction systems empower non-speaking users. Giving control back to the speaking partner may jeopardize the non-speaker's limited control within the conversation (Dennis, 1995). An interface using two-way prediction should therefore include an option whereby the user could ignore the partner input.

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Acknowledgements
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New Publications

Don't Hang Up - A training package to help people with communication difficulties use the telephone more effectively

Created by Joan Murphy and Janet Scott
Published in 1999 by University of Stirling
ISBN 1 85769 0982
Video (PAL, 40 mins) & Paperback Workbook (28pp)
Available from: Psychology Dept, University of Stirling, Stirling FK9 4LA Cost: £35 (£29.78+VAT) inc. p&p

Good communication over the telephone is a skill which is built up over time. Even competent telephone users can fail to achieve sufficient skills to make functional use of an answerphone. The whole scenario is even more fraught for people who use electronic aids to make and receive calls. *Don't Hang Up* is a package which outlines some of the difficulties people experience when using AAC systems with the telephone. It illustrates different practical methods that can be used to overcome some of the barriers.

The package is based on a study carried out in Scotland in 1998 which highlighted the fact that although the telephone is recognised as an important factor in maintaining independence, preventing isolation and providing safety and reassurance, few people with communication difficulties receive any help in using the telephone. The package focuses on four main areas:

- Reasons for using the telephone
- Difficulties people may experience
- Possible solutions
- Strategies to practise

Each section of the video features people with different levels of cognitive, communication and physical ability, using the telephone in a variety of ways. Some use elaborate adaptations to use the telephone totally independently, some use the telephone in a very simple way but one which improves the quality of life for them and their carers.

The booklet is intended to help AAC users themselves take responsibility for identify their needs, and provides a practical tool to help them use the telephone better and to participate in informing and training others to facilitate better communication.

The complex nature of telephone interaction and the special difficulties AAC users face are important issues. Many therapists and carers need guidance on how to introduce and support telephone usage with AAC users. They ask for ideas on how to increase the necessary skills and confidence when communication breakdown occurs as people experience negative responses to their voice synthesiser over the phone. This training video does not address all such issues, but nevertheless is a valuable contribution to the area of electronic aids and telephone use and will provide practical help and encouragement to communication aid users who perhaps never thought that they would be able to communicate via the telephone.

Review by Eileen Grist

Teaching Communication Skills to Students with Severe Disabilities

By June E Downing (with invited contributors)
Published in 1999 by Paul Brookes Publishing Co.
ISBN 1 55766 385 8
Paperback Book (198 pp)
Available in the UK from: Jessica Kingsley Publishing, 116 Pentonville Road, London N1 9JB

This is a book of high quality which I would like to see on the 'essential reading' list for any educators whose groups include pupils with severe and complex learning difficulties.

Unlike many American textbooks, this book is very readable - jargon-free and it speaks in a direct and practical voice, briskly debunking a series of outmoded beliefs such as the notion of 'prerequisite cognitive skills' for communication. It is written from a child-centred and inclusive perspective, stressing analysis and adaptation of the environment, development of the teacher's skills, functions of communication, and the socio-communicative (rather than linguistic or operational) competences of the pupils.

There is a good balance between - plentiful, in both cases - references to relevant research and literature, and examples from real children and classroom experiences.

While the authors demonstrate awareness of a range of approaches (e.g. AAC, facilitated communication, person centred planning), what is really nice about this book is the way that all of these are integrated within a broader model of communication teaching and learning. Unfortunately (but perhaps realistically) although the authors also show an understanding of the universal problem of professionals - lack of time and the difficulties of effective interdisciplinary team work - there are fewer constructive solutions offered to these issues.

Each chapter (and the book as a whole) provides an extensive list of (American) References, and there are a number of useful checklists. Chapters in the book are as follows:

- The Importance of Teaching Communication Skills
- Assessing Communication Skills
- Teaching Communication Skills: First Steps
- Interactions for Different Purposes, Conversations, and Generalisations of Skills
- Augmentative and Alternative communication Techniques
- The Role of Communication Partners
- Working Together to Ensure Integrated Service Delivery
- Commonly Asked Questions: Challenges to Effective Communication Intervention

I particularly liked the chapter on Teaching Communication Skills: First Steps, which presents simply written descriptions - with examples - of many important practical techniques such as expectant looking, waiting, being less directive, modelling, prompting, offering choices and so on. (The perfect touch would be if there had been a video to go with these - but no luck there!)

The chapter on AAC Techniques is contributed by Pat Mirenda. AAC specialists may not learn anything particularly new

here, but it is a clear, comprehensive but succinct introduction/overview of the topic area which could provide a useful reference for students and teacher colleagues new to the field.

The 'troubleshooting' section at the end is a worthwhile feature (that teachers and therapists might like to read first).

Sally Millar

Teaching Children who are Deafblind: Contact, Communication and Learning

Edited by Stuart Aitken, Marianna Buultjens, Catherine Clark, Jane Eyre & Laura Pease
Published in 2000 by David Fulton Publishers, London
ISBN 1 85346 674 3 (248pp)

This is another very good book. An update and revision of the older CONTACT resource, this book is written by experienced and respected practitioners in the field of special education and sensory impairment, and is aimed particularly at education and residential care staff.

The book is presented in an attractive and very accessible way, richly illustrated with real life case studies. It is written in a clear, positive voice, and unlike many compilations from a variety of authors, is well edited, with links and cross-references between the content of each chapter. It includes chapters on:

- Understanding Deafblindness
- Creating a Communicating Environment
- Personal and Social Development
- Holistic Assessment
- Curricular Frameworks
- Effective Teaching and Learning
- Deafblindness and Society

It also includes a useful glossary of terms (though better on the visual than the auditory side) which could help practitioners to 'translate' reports from ophthalmologists into functional terms.

This book will be of value to everyone who works with children with severe sensory impairments. It will be of interest to people who work with AAC because it puts communication right at the heart of the whole process of building relationships, making sense of the world and social and cognitive development (and indeed, also in relation to preventing or dealing with challenging behaviour) with children with severe sensory impairments.

There are many practical tips for teachers, e.g. about how to choose and present appropriate materials, organise the classroom and pace activities. Reference is made to strategies such as co-active working, cueing, scripts/routines, and to practical and functional ways of using objects of reference, pictures, photos and symbols, tactile symbols, signing, fingerspelling, and communication technology.

The book indicates many areas of good practice, such as school policies (e.g. with regard to sign systems), how to observe and record behaviour, increasing functional communication opportunities, high quality inter/trans-disciplinary teamwork and partnership with parents.

Sally Millar

Speaking Up and Spelling It Out: Personal Essays on Augmentative and Alternative Communication

Edited by Melanie Fried-Oken & Hank Bersani,
Foreword by Pat Mirenda
Published in 2000 by Paul Brookes Publishing Co.
ISBN 1 55766 447 1
Paperback book (268pp)
Available in the UK from: Jessica Kingsley Publishing, 116 Pentonville Road, London N1 9JB

Although the 'M' word is delicately avoided, this is clearly the AAC book of the Millennium. Introduced by a moving Prologue by AAC user Janice Staehely, twenty seven individuals who use AAC have contributed illuminating essays, poems, interviews and personal stories of varying lengths. This book is a great celebration of the patience, insight, determination and strength of people who use augmentative communication.

It's hard to write an appreciation of the book's authors without sounding patronising. Nobody can tell us anything about AAC better than those who use it and live with it. We would all do well to read this book. The field of AAC has indeed come of age when we can listen and learn from users instead of talking about them or how to teach/support them. David Chapple provides a thought to take to work with you: *"AAC doesn't make successful people; people make AAC successful"* (p160).

I could not hope to find better words than those of the Introduction written by Oken and Bersani: *"This book is written by stars" (p13).*

Sally Millar

Product Review

The Pathfinder Communication Aid

This is a review of the Pathfinder which is the latest voice output communication aid using Minspeak® from Liberator Ltd.

It not only uses the latest technology but also is the first communication aid to have both a static overlay and a touchscreen to access vocabulary. This is an innovative way of accessing vocabulary since, until now, communication aids have either had just a static overlay or just a dynamic touchscreen.

The main reason for this new approach is because users of Minspeak systems like myself have found we can become very fast accessing vocabulary because the symbols are always available to us and never change. In this way we can become automatic, using our systems like a touch typist. For device users who can use their hands to access a communication aid, they will develop automatic hand movements while for those, like myself, who use infra-red headpointing, we can develop automatic head movements. There is also an element of automaticity in scanning. Thus, accessing vocabulary can become very fast.

The touchscreen is available for making accessing easier in that by pressing a category icon, for example CUPS in Language, Learning and Living™ (LLL) which will take the user into the 'drinks' category, pictures of actual drinks will appear on the touchscreen. However, the user with more developed cognitive skills and world knowledge can use memorised LLL icon sequences as on any other Minspeak system (apart from the Vanguard™ or AXS1600™ which use the dynamic screen approach).

The touchscreen can also be used by creating 'activities' such as 'going to the cinema', 'going to the restaurant', 'Simon says' game and so on. There can be hundreds of activities created in the Pathfinder and can modify existing activities. There are over 1800 icons or pictures and, if you cannot find the picture for which you are looking, you can import your own from a computer using your Memory Transfer Interface (MTI) disk.

The most exciting feature of the Pathfinder for me is that the infra-red headpointer does not attach to the device itself as it did on my Liberator. This means I do not get my fingers caught in the cable if my arms or hands spasm. The headpointer attaches to a battery pack which is rechargeable and can be placed behind me.

Another useful feature is being able to put the Pathfinder on a table using its stand especially in a restaurant where space can be more limited. It also allows me to see people at meetings or those to whom I am talking during meals.

The only real problem I have found with the Pathfinder is that it is difficult to see the screen when in direct sunlight. However, this is not a Minspeak problem but a general problem of screen technology which needs to be developed for televisions and laptops as well, so that they can be seen in sunlight.

Other features in Pathfinder include a four function calculator, the facility of using infra-red signals to control appliances such as TV, video, curtains, window openings and so on, word prediction and computer emulation.

Although a lot of Minspeak users have been able to use communication aids linked to a computer to write into a word processor, if you wanted to operate the mouse you or your facilitator had to spend many hours programming mouse movements and emulation of the mouse clicks. The Pathfinder has all these mouse movements and emulation of clicks as well as computer key shortcuts programmed into it when you get it.

When you use word prediction the six words most frequently used starting with that letter appear on the screen. There is also recency effect where it learns the words which have been used and places the most recent word accessed into first position in the list.

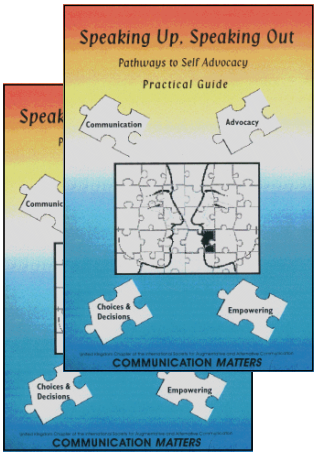
If you do not have the motor skills to access one of the six windows on the screen you can assign any six keys on the overlay to represent the windows on the screen.

If you are in Minspeak mode with word prediction turned on, the Pathfinder will predict the word endings or derivatives of the word you accessed from your Minspeak sequence.

The Pathfinder has six User Areas each of which can hold a maximum of 300K of memory as well as over 15 minutes of digitised speech. It is about 2 Kg (4lbs) in weight and measures 310mm x 245mm x 80mm. The battery life is about 15 hours.

Anthony Robertson, AAC Consultant
Independent Expressions

Essential Publications from Communication Matters

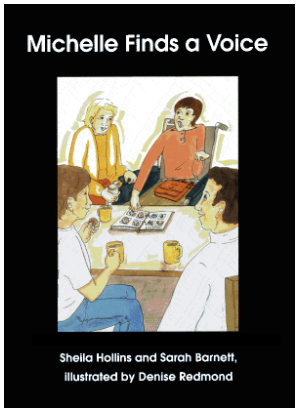


Speaking Up and Speaking Out! Pathways to Self-Advocacy

This pack is intended for carers, facilitators and others concerned with the advocacy needs of people with severe communication difficulties who need or use AAC. It is useful for staff development, especially for those working with adults. Developed by a special task force of Communication Matters members, the pack comprises two books. One is a comprehensive and detailed Handbook which includes case stories, discussion points and references. The other is a Practical Guide which summarises the main points of the Handbook in a series of photocopiable overheads, checklists and activities designed to help users build an advocacy plan for individuals.

Price: £30 including p&p available from **Communication Matters**

Michelle Finds a Voice



This book is a story about Michelle, a young adult with disabilities who is unable to speak or communicate effectively. A number of events cause her to feel unhappy and isolated until she and her carers are helped to overcome the communication difficulties. Various solutions are explored, including the use of signing, symbol charts and electronic communication. Michelle's story is told through pictures alone to allow each reader to make his or her own interpretation, but there is also text at the back of the book to provide one possible narrative for the pictures. The book was created by Sarah Barnett and Sheila Hollins and published by the Royal College of Psychiatrists, with financial support from Communication Matters.

Price: £10 plus £1.50 p&p from **Communication Matters**

Alternatively Speaking

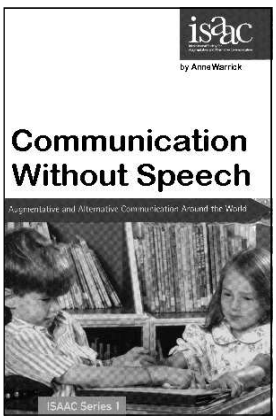
Published three times a year, this eight page newsletter, from Augmentative Communication Inc. in the USA, contains AAC issues and in-depth reports on topics vital to the AAC community. It is written by Michael Williams, who is an AAC user and serves on ISAAC's executive committee.

Ring **Communication Matters** for an order form.

Augmentative Communication News

Published six times a year by Augmentative Communication Inc. in the USA, each issue contains eight pages of in-depth information on particular topics researched and written by Sarah Blackstone.

Ring **Communication Matters** for an order form.



Communication Without Speech: Augmentative and Alternative Communication Around the World

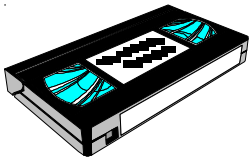
This ISAAC book, written by Anne Warrick, is a highly accessible but very comprehensive introduction to augmentative and alternative communication. It contains lots of questions and practical tips such as vocabulary selection, assessment, education and vocational considerations, making communication boards, and includes excellent photographs and illustrations.

Price: £15 plus £1.50 p&p available from **Communication Matters**

In Other Words (ISAAC video)

This 30 minute awareness raising video was produced in the UK by Caroline and James Gray. It is an excellent introduction to the field of AAC and would be great to show parents and students from a variety of disciplines, as well as to staff new to AAC.

Price: £10 to CM members (otherwise £15) including p&p **only available from ACE Centre (ring 01865 759800)**



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