

MAKATON VOCABULARY DEVELOPMENT PROJECT
Research Information Service
July 1980, Volume 1, Issue 1

NONSPEECH SYSTEMS OF COMMUNICATION; AN INTRODUCTION

Compiled and Written by Nicola Grove, MSc, LCST
Edited by Margaret Walker, MSc, LCST

Published by
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INTRODUCTION AND BACKGROUND TO THE MVDP RESEARCH INFORMATION SERVICE

INTRODUCTION

This service is designed to short circuit the problems which beset busy practitioners who would like to be aware of developments in current research into sign language and apply some of the findings in their treatment of clients, in lectures, in counseling of parents and staff, in running of courses and Workshops and in giving information to colleagues.

Each year from July to June a volume of ten issues will be produced (cost £7.50 per volume plus postage and packing). For reasons of economy and convenience two issues will be produced at a time and dispatched together to subscribers, at two monthly intervals. For example:

Vol.1, Issue 1 - July 1980 Non-Speech Systems: An Introduction

Vol.1, Issue 2 - August 1980 Reviews, Surveys and Bibliographies of research into non-speech systems

both dispatched August 1980.

The content of Volume 1 has been planned and preparation of issues are underway but due to the quantity of current research continually being published in the field of non-speech systems, a certain amount of flexibility must be expected.

Topics to be covered by the MVDP Research Information Service in a collection of volumes will include: Non-Speech Systems (2 issues - July/August 1980); then a series of issues covering research into the use of non-speech systems with mental handicap; autism; multiple handicap; developmental language disorder and aphasia. It is also planned to provide issues on research into the relationship of linguistics, psycholinguistics, and neurolinguistics with non-speech systems. Supplements will be issued periodically to keep abreast of current research. Each issue will be presented in the same format so that they may be collected and filed in a suitable A4 Binder. At the end of every year a subject index will be completed for that volume.

This Research Information Service has been compiled and written by Nicola Grove, Research Information Officer, MVDP. In addition to this work, she is in correspondence with people carrying out and planning research and she would welcome the exchange of research information. Anyone wishing to correspond with her, should do so through the MVDP address.

Margaret Walker
Editor

BACKGROUND

This Research Information Service is based on my Author/Subject index of research into non-speech systems originally designed for the use of MVDP Regional Representatives and Research Group members. When I started my research reading eighteen months ago, I used two excellent general research information sources -the British Institute of Mental Handicap Current Awareness Scheme and the Royal National Institute for the Deaf Library Information Packets as a basis from which to work. There were two options open to me, I could draw up a list of categories which I thought were relevant and try to read any and every paper on the subject. As I hope you appreciate, this was out of the question! Or I could select papers from the RNID and BIMH lists which appeared to be relevant to sign language research and use them as a basis from which to continue reading, creating categories for my subject index as and when it seemed appropriate to do so. This was the course I adopted and in general it has paid off. However, it means that my coverage of topics is by no means exhaustive, as an example will illustrate:

Hemming et al (1979) Gaze patterns of mentally retarded adults in two contrasting environments
Am. J. Ment. Defic. 83, 6, 561-565.

This paper refers to eye contact behaviour in an institution and in a hostel setting. It refers to three obvious areas:

Eye Contact - Mental Handicap: General (as opposed to Mental Handicap and Non-speech Systems): and Institutionalisation.

The first two categories already appeared in the subject index but this was the first paper I had read relevant to research on sign language, which also dealt with the effects of institutionalisation. I therefore entered this category in the subject index and checked through my existing references to see if any were relevant to it. In my subsequent reading I was then alerted to make a note of studies relating to institutionalisation and its effect on communication. I have not attempted to go back over published research and include all the papers written for example, by Professor Tizard on the subject, at present only four references are listed in this category. However, when I come to write the issue which includes this topic I shall hope to direct readers to one or two major papers on the subject for general interest.

Similarly, because I see the major focus of my task as the documenting of applied research on sign language within the treatment of communication problems, many other areas, such as the use of communication aids and symbol systems with the physically handicapped, are not covered in depth. What I attempt to do here is to give good general references, which will enable you to follow up these topics if you wish to.

Cross-Referencing

Most papers yield information relevant to more than one topic, and a cross-referencing system will operate. In general, full discussion of an article will appear where most appropriate and other references to the article will simply refer to the relevant issue. The Hemming paper referred to above would be summarised under INSTITUTIONALISATION and its findings mentioned under EYE CONTACT and the entry under MENTAL HANDICAP: GENERAL would read: See INSTITUTIONALISATION: EYE CONTACT.

Inevitably there will be a hiatus in some cases, some articles will appear as references long before their findings are fully discussed. However, you are of course free to track them down and draw your own conclusions in the interim.

Summaries

I have not read every paper listed and not every paper will be accompanied by a summary. Where the findings have implications for clinical practice, summaries are quite detailed. They are not, however, intended as substitutes for the genuine article. Reading papers is a subjective activity and I will certainly have missed points which you would pick up (in which case please let me know). I would strongly recommend your obtaining the originals of the more important papers and forming your own judgements.

There is a great danger in over-generalising results obtained with specific studies, often using precisely defined methods with a small number of subjects. Sign language research in the applied field is really in its infancy and although a number of studies suggest the emergence of certain principles which have varied application, these may well be qualified by subsequent research (eg the whole question of whether sign alone or simultaneous Sign/Speech presentations should be used with autistic subjects - see AUTISM). It is very important therefore not to take the clinical applications I have suggested as rules of thumb, but to consider them sceptically and apply them cautiously.

Terminology

I have made assumptions about your familiarity with some of the technical terms involved, which I hope are justified. I have assumed that you would adapt this information when sharing it with others who do not perhaps have a similar background. However, I do not want to make the thing unreadable by overloading you with jargon. I shall be sending out a questionnaire after the first few issues have been circulated, which I hope will help us to adapt the Service where necessary.

The system can be used to file any references which you personally want to include. If you come across any papers which I have not included which you think are relevant to sign language research, please let me know

Acknowledgements for advice and information to: Derek Sayer and Alan Haythornthwaite, Signing Experts, MVDP Training Committee: Barbara Reid, Thomas Coram Research Unit: Patricia House, Administrative Secretary, MVDP for her time and patience in presenting and typing the issues.

Nicola Grove

Research Information Officer, MVDP

NOTATIONS USED THROUGHOUT ISSUES

- * Paper/Books available for reference from:
Royal National Institute for the Deaf, Library, 105 Gower Street, London WC1E 6AH
- ° Paper/Books available for reference from:
British Institute of Mental Handicap, Wolverhampton Road, Kidderminster, Worcs.

NONSPEECH SYSTEMS OF COMMUNICATION: AN INTRODUCTION

Non-speech communication systems have been used for centuries by the deaf and their teachers, but it is only recently that their potential value in the remediation of other handicaps has been appreciated. Particularly in the USA, there has been a very rapid development in the field which has resulted in a multiplication of systems, characterised by confusing abbreviated titles such as SEE₁ and SEE₂, SIGLISH, LOVE, MELDS. In Britain the situation is simpler, since usage is much more standardised and at the moment restricted to three or four systems, but we can expect to see more diversification in the future. Although there are many similarities between the systems, the differences are important and crucially affect their application.

Non-speech systems can be divided into those using signs and those using symbols. Sign systems are further subdivided into sign languages and signed speech systems. See Fig.1.

SIGN LANGUAGES

eg BSL (British Sign Language)
ASL (American Sign Language – also termed
AMESLAN)

The term sign language refers to the natural medium of communication of the deaf which has evolved over many years and has full claims to the status of an independent language. Sign languages are linguistically structured according to visual parameters, with their own grammatical processes. The language is acquired naturally in the home by deaf children of signing deaf parents; children from a hearing background acquire it through contact with the deaf community, often in the teeth of prohibition by the schools which they attend. There is no “universal” sign language and although there may be similarities in signs between languages, the user of ASL will not be able to understand, say, Chinese or French sign language.

Previously, the suppression of signing in deaf schools was justified partly by claims that signs were “a loose collection of pictorial gestures” overconcrete, simple reductions of spoken English, which limited not only communication, but also the development of abstract thought. The pioneering research of William Stokoe and of Ursula Bellugi and her colleagues, has shown that this attitude arose out of a fundamental misconception which assumed that languages should be defined by auditory-vocal criteria. Sign languages employ features such as shifts in the direction and sphere of movement, and changes in speed of signing to express grammatical distinctions and these escaped the notice of critics who were looking for visual analogues of the inflections of spoken English. Sign languages have their own word order and do not signal the some distinctions as spoken English.

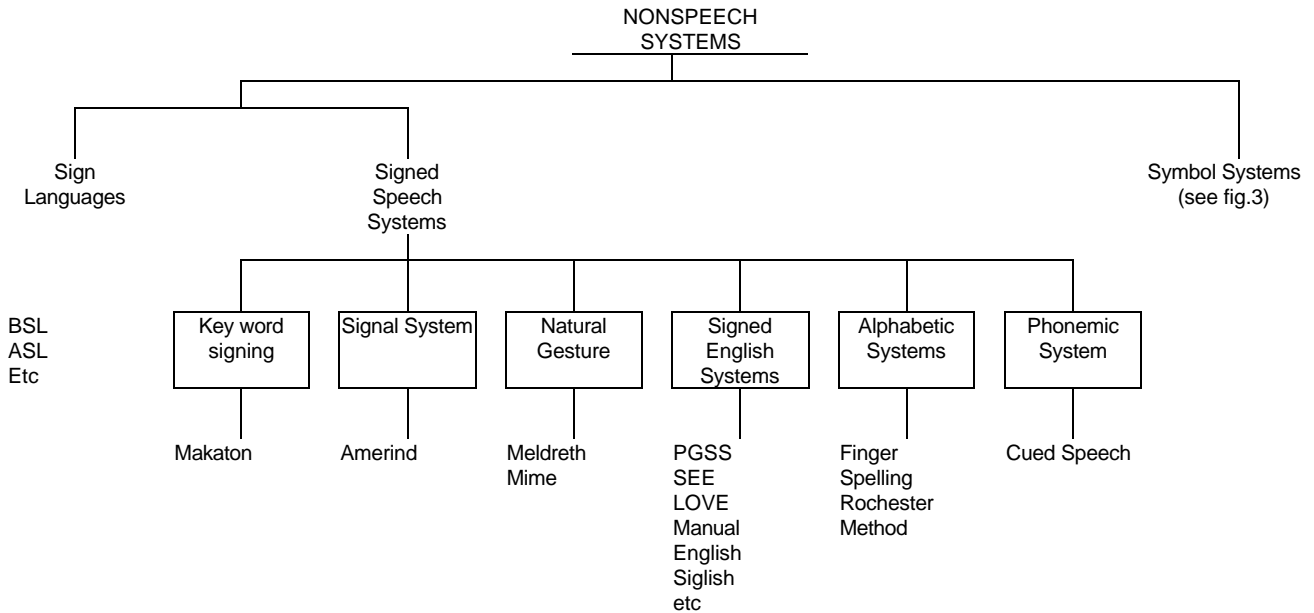
The structure of sign languages will be discussed in more detail in the MVDP Research Information Issue Volume 2 Issue 1 - LINGUISTICS OF SIGN LANGUAGE. However, it is important to convey to the staff and parents when you are introducing sign programmes that you are not resorting to a language which is in some way debased or inferior, but on the contrary, making use of sophisticated visual-gestural features to supplement the deficiencies of a spoken language.

The “pure” form of signing is used among deaf people. There is no attempt to approximate the grammar of spoken English and no accompanying speech, although there may be attendant vocalisation and lip movements and a degree of finger spelling. Much use is made of facial expression.

In communicating with hearing people, and in certain situations among themselves, the deaf will use same form of signed speech. One such is known at present as “pidgin” signing. Here key concepts are signed, which may or may not take the word order of spoken English.

Whether or not the communication is spoken as well as signed depends on who is signing, since “pidgin” can be used by hearing people involved with the deaf as well as the deaf themselves.

FIGURE 1: NONSPEECH SYSTEMS - SIGN



A second pattern of signed speech used by the deaf and those who work with them is termed, for want of a better word “Total Communication”. This label really describes an attitude to communication, rather than a method, whereby an individual is encouraged to use all the means of communication of which he is capable; as such it recurs in the literature on other communication handicaps. As used by the deaf, it means the approximation of Spoken English word order with a combination of signs and finger spelling and purposefully employing such skills as vocalisation, lip movements, expressivity, and use of residual hearing, that the individual possesses. It is the approach advocated in those schools for the deaf which teach through signing and is the main interpretive tool used at Conferences, Universities, etc, where the hearing and deaf mix. An example will illustrate the difference between these modes of communication.

Example

Total Communication:	What	sort	of	a	job	have	you	?
	sign	FS	FS	FS	sign	sign	sign	
Pidgin	What	work	you	?				
	sign	sign	sign					
BSL	You	work	what	?				
	sign	sign	sign					

(FS = Finger Spelling)

The relationship between the three variants can be expressed along a continuum. See Fig.2.

FIGURE 2:

Sign Language Continuum

<u>“Pure BSL”</u>	<u>“Pidgin” Signing</u>	<u>“Total Communication”</u>
<ul style="list-style-type: none"> – BSL Grammar – Little finger spelling of words – Some degree of lip movements and vocalisation – Much use of facial expression 	<ul style="list-style-type: none"> - BSL signs to express key concepts - Little or no finger spelling 	<ul style="list-style-type: none"> BSL Signs + Spoken English word order + Finger spelling + Lip movements + Vocalisation + Facial expression

This diagram represents an abstraction of the spectrum of possibilities of signed communication, rather than a description of three distinct styles of behaviour: deaf people do not form a homogeneous group with regard to signing ability. Their communication skills vary and their familiarity with signs may depend, among other factors on whether they were brought up by signing deaf parents, or learned signs covertly in the playground of a strictly “oral” school. The type of communication used is partly determined by the skills of the deaf person himself, and partly by the situation in which he finds himself. Just as a hearing person will ‘select’ a different dialect (involving changes in vocabulary, grammar, intonation and accent) depending on whether he is speaking to, say, his small child or his university professor, a deaf person will modify his style of communication to suit different situations. It is important to recognise that sign language possesses in full the property of spoken language, varying along many different dimensions.

The issue of sign language has become politicised in recent years. Like other minority groups whose native language has for long been suppressed and denigrated, the deaf are beginning to assert their rights to take a pride in, and to use, their language. Much of the momentum, however, has come from the outside influence of linguistic research and there is at present a lot of confusion in the deaf world about what does, or does not, constitute BSL. Linguistic purists may maintain that only the “pure” variant is true BSL, excluding all finger spelling and the aspects of Total Communication. The average deaf person, however, will doubtless continue to use finger spelling where he feels it to be appropriate without considering whether or not he is adhering to the abstract rules of his language.

“Pure” BSL is not, at present, taught (although it may be in the future) since hardly any hearing people are skilled in it and the rules for its use are only just now being explored by various bodies, including the British Sign Language Research Project, Edinburgh and the Sign Language Research Project, Bristol. The British Deaf Association is currently setting up a council for the Advancement of Communication for the Deaf, which will comprise four advisory committees to advise on: training, assessment, teaching and information.

References

* Wilbur, R.B. (1976)

The linguistics of manual languages and manual systems in Lloyd, L.L. (Ed) Communication Assessment and Intervention Strategies

UPP Baltimore, 1976, pp.423-501

This is a very readable and informative introduction to the subject.

* Kilma, E.S & Bellugi, U.(1979)

The Signs of Language

Harvard University Press, Cambridge, Mass.

A technical book giving linguistic descriptions of the structure and processes of ASL.

* Siple, P. (1978)

Linguistic and Psychological Properties of ASL An Overview in P. Siple (Ed) Understanding Language Through Sign Language Research, NY Academic Press, 1978

Useful introduction, includes information on acquisition of sign language by deaf children and on memory studies.

* Stokoe, W.C. (1978)

Sign language research: what it knows and whither it leads British Deaf News, August 1978

* Brennan, N. (1976)

Can Deaf Children Acquire Language?

In British Deaf Association supplement - An Evaluation of Language Principles in Deaf Education, British Deaf News, 1976

Miss Brennan is one of the co-ordinators of the British Sign Language Research Project, which aims to provide a linguistic description of BSL and develop techniques of transcription and notation and to produce illustrative materials.

British Sign Language Research Project

Chessel's Land

Moray House College of Education

Holyrood Road

Edinburgh EH4 4AQ

The Sign Language Research Project

School of Education

University of Bristol

19 Berkeley Square

Bristol

This project aims to identify the skills involved in Sign Language use and to evaluate the differences and similarities between deaf and hearing users such as Interpreters and Social Workers with the Deaf.

The British Deaf Association

38 Victoria Place

Carlisle

Cumbria CA1 1HU

The British Deaf Association have produced a number of publications on sign language and are hoping to produce 'a dictionary of BSL signs' in the very near future. Also responsible for setting up the Council for the Advancement of Communication for the Deaf.

SIGNED SPEECH SYSTEMS

From consideration of sign language as it is used by the deaf to communicate at all levels of social interaction, we come to the use of signs in adapted and systematised form for educational and therapeutic purposes. The generic term “signed speech systems” will be used to cover all such use of signs, although the relationship of each system with native sign language will vary. To date, all use of sign language in the education of the deaf and in the treatment of communication disorder, has been in fact the use of signed speech in one form or other. It is important to remember this, since the American research constantly refers to the use of ASL, when what is probably meant is ASL signs + spoken English with key word signing, as opposed to one of the signed English systems described below.

KEY WORD SIGNING - The MAKATON VOCABULARY

In this system a selected lexicon of signs from BSL is used in conjunction with spoken English. The key words of a sentence, ie those carrying the information are signed in English word order and the whole sentence is spoken naturally. Facial expression and body language are used considerably.

Example

Makaton:	Speech	-	Where	do	you	work?
	Signing	-	sign		sign	sign

Makaton:	Speech	-	The	cup	is	on	the	table
	Signing	-		sign		sign		sign

This method seems well suited to the limitations of handicapped people where there are constraints on processing ability, memory and manual dexterity. The advantage of using a selection of signs from the native sign language is that the system can be extended when a client has the necessary ability and there is therefore ample opportunity to develop communication.

As we have seen, there are certain situations in which the deaf themselves may employ a form of key word signing or “pidgin” and the use of BSL signs with the Makaton Vocabulary has some similar features. However “pidgin” differs from Makaton in so far as whole sentences are not necessarily spoken and the signs may or may not take English word order. See example Sign Language section, Page 3.

The Makaton Vocabulary is at present the most widely used system with the handicapped in the UK. It is a total language programme designed originally for use with the mentally handicapped, but flexible enough to be adapted to the needs of other handicapped populations.

The Vocabulary consists of a graded selection of some 350 signs from BSL, based on developmental and functional principles. It is taught in stages to ensure that advanced concepts are not introduced too early. It can also be expanded to suit individual needs if required.

Communication is possible within each stage and is not limited to single sign/ concept use only. The specific selection of signs allows them to be permuted into a variety of phrases and sentences. In this manner the complexity of language used may be adjusted to suit the handicapped person’s need.

In cases where the entire vocabulary has been acquired and dependency on this non-speech system continues, the handicapped person can then progress from Makaton along the sign language continuum to "total communication" acquiring more signs from BSL and some finger spelling (See Fig.2, page 4).

Materials produced by the Makaton Vocabulary Development Project include: Vocabulary Lists, Language Programmes, Line Drawings, Supplements for Aphasic Patients, reference film of the signs.

References

Walker, M. (1973)

An experimental evaluation of the success of a system of communication for deaf, mentally handicapped adults. Unpublished M.Sc. Thesis, Human Communication, University of London available for reference:

1. School for the Study of Disorders of Human Communication, 86 Blackfriars Road, London
2. Royal National Institute for the Deaf, Library, 105 Gower Street, London

Walker, M. (1978)

The Makaton Vocabulary In Tebbs, T. (Co-Ordinator) Ways and Means published: Globe Education Ltd.

* Millington, A. (1976)

O.T. With Signs Solves Problems of Behaviour
Occupational Therapy, July 1976, 40, 186

Bailey, R.D. & Tait, E. (1979)

Knowing but not doing Makaton
Apex 1979, 7 : 2, 65-66

See MVDP Research Information Issue – MENTAL HANDICAP

Makaton Vocabulary Development Project Research Group. This is a national group of Psychologists, Psychiatrists, Speech Therapists, Teachers, etc all workers in the field of handicap. It aims to identify areas of sign language use requiring research and encourages and supports "grass roots" research from workers in the field.

For research information contact, Mrs. N. Grove, Research Information Office (address below).

For general information contact: Makaton Vocabulary Development Project, 31 Firwood Drive, Camberley, Surrey GU15 3QD.

SIGNAL SYSTEM

AMERIND

Amer-Ind is a gesture system based on American Indian Hand Talk, devised by Madge Skelly and her colleagues to meet the needs of glossectomised patients and since adapted for use by apraxic and aphasic people. It has also recently been used with mentally retarded children. Amerind is not a sign language, with an internalised structure, but a signal system, by which each gesture signifies a single concept, which can be directly translated into its verbal equivalent. Sentences are formed by stringing gestures together, and new concepts can be formed by "agglutination" - the combination of two or more gestures.

Example

Word:	Grocery Store
Agglutinated Gestures:	Shelter + Money + Eat

In the USA research suggests that the main advantage of Amerind over the use of American Sign Language is that the gestures are extremely concrete, and are thus not only very easily learnt by clients but are over 80% intelligible to persons unfamiliar with the system. Where communication is destined to remain at a simple level, and the client is likely to be interacting with people who do not know, or who prefer not to learn, a system based on American Sign Language, Amerind seems to be a useful alternative. At more advanced levels of communication, however, it is thought that Amerind signs may not be as well suited to the expression of complex ideas as those of a native sign language. Amerind is the most widely used system in the USA with aphasic patients. As far as the mentally retarded are concerned, the concrete gestures of Amerind may be an advantage to learning, but in fact the vocabularies based on ASL which are used with these clients, contain a high proportion of concrete signs in any case and the systems may be equivalent in this respect (Fristoe & Lloyd, 1979).

In the UK Amerind has been used on a small scale with aphasic adults and mentally handicapped children. If comparison of a basic vocabulary is made between BSL signs and Amerind there seems to be little difference since both seem equally concrete and intelligible and the advantages of Amerind over a native sign language, as noted in the USA, may not be so relevant here. This may be because BSL signs differ quite markedly from ASL. Many BSL signs relate to natural gesture and often convey the function of the concept they represent, whereas ASL has become more sophisticated. Also when Amerind is used at a more advanced level of communication, involving the agglutination process, then it would seem to be more complex, than the equivalent BSL structure.

References

* Skelly, M. (1979)

Amer-Ind Gestural Code based on universal American Indian Hand Talk
New York, Oxford : Elsevier, 1979
See MVDP Research Information Issue - APHASIA

* Skelly, M., Schinsky, L., Smith, R.W., Donaldson, R.C. & Griffin, M. (1975)

American Indian Sign: A gestural communication system for the speechless
Archiv. Physic, Medec & Rehab. Vol.56, April 1975, 156-160
See MVDP Research Information Issue - APHASIA

Duncan, J., & Silverman, F. (1977)

Impacts of learning American Indian Sign Language on mentally retarded children: A preliminary report
Perceptual Motor Skills, 44, 1138, 1977
See MVDP Research Information Issue – MENTAL HANDICAP

Information source for Amerind in the United Kingdom:
Mrs. Suzanne Leavesly
7 Chester Close
Lichfield
Staffordshire

NATURAL GESTURE

MELDRETH MIME

This system used signs based on natural gesture and was developed by L.M. Levett in the 1960s for use at Meldreth Manor School, where it has now been superseded by PGSS.

References

Levett, L.M. (1969)

A method of communication for non-speaking severely subnormal children
Brit. J. Dis. Comm, 1969, 4, 64-66

(1971)

A method of communication for non-speaking severely subnormal children : Trial Results
Brit. J. Dis. Comm, 1971, 6, 125-128

SIGNED ENGLISH SYSTEMS

e.g. PAGET GORMAN SIGN SYSTEM, SEE₁, SEE₂, LOVE, MANUAL ENGLISH, SIGLISH

These were developed as a method for teaching spoken English to the deaf. Signs are used in English word order, supplemented by finger spelling to indicate, for example, grammatical inflections. On the face of it, the assumption that this would be an effective teaching tool seemed reasonable. However, the more we learn about the complex structure of sign language, the clearer it appears that in Wilbur's words:

"This basic assumption is dubious. The parallel in auditory languages would be to put Swahili words into English word order in order to better teach English to Swahili speakers..."

It may be more profitable to view the learning of spoken language by the deaf in terms of the learning of a second language, the native sign language being, so to speak, the mother tongue.

For hearing groups who are handicapped in communication, spoken English is the first language and the language of their environment and there are therefore sound reasons for using some form of signed speech in remediation, although this is not to say that problems do not arise in such a fusion of two media.

There is as yet, no agreed system of signed English for the deaf in the U.K., although work is in hand on a standardisation. It is only very recently that the idea of using signs at all has become acceptable in some educational quarters - although not all by any means. PGSS (see below) is the only formalised sign system in use with communication disorders.

There is a plethora of signed English systems on the American market; most major centres using signs seem to have evolved their own. They differ essentially in how close the correspondence is with spoken English, the use of finger spelling, and in how they handle problems of morphology. These problems can be illustrated with reference to verb tenses, and to multiple word meanings.

Past tense verbs in Signed English

In spoken English, regular verbs form their past tenses by the addition of the -ed suffix, whereas irregular verbs display a variety of changes to the root form.

Example

Regular		Irregular	
Talk	- Talked	Sing	- Sang - Sung
Play	- Played	Catch	- Caught
		Go	- Went - Gone

These inconsistencies arose from historical changes and needless to say, there is no logic to them. To translate each of the irregular past tense verbs and participles directly into individual differing signs would clearly make for very poor learning conditions; it is desirable that the signs chosen should reflect the underlying connection of past time, and thus be similar in some way. There are various options for representing this in a signed English system, none of them entirely satisfactory. Some examples are:

1. To use a single past tense marker for all verbs, such as finger spelled 'D'. This suits well for regular verbs: talk + D, play + D, but results in anomalies such as go + D, sing + D. The correspondence with written English, and with spoken English lip movements, is lost.
2. To use a single past tense marker for regular verbs and to finger spell the irregular verbs. The correspondence with written and spoken English is retained, but the logical connection of tense is lost and also the connection between the individual signs, the sign for sing bearing no resemblance to the finger spelled sang.
3. Use two different markers, e.g. finger spelled 'D' for regular verbs, ASL PAST sign for irregular verbs.

Multiple Meanings

There are many words in English which are spelled the same, but which have separate meanings: saw, lead, wind, list, call, type. The systems differ in how they choose to represent these words in sign.

Paget-Gorman Sign System has a combination of basic signs, to indicate category, such as PERSON and modifier, to indicate the individual referent. Thus for "Dentist" one hand signs PERSON, and the other hand TOOTH. There are separate signs for separate meanings.

SEE_{1&2} and LOVE follow the "two out of three" rule: if two words have in common any two combinations of same spelling, pronunciation and meaning, one sign will be used for both. Thus there is one sign for list, call, two signs for wind, lead. An exception is that signs for grammatical forms cannot be used for other words: thus there are two signs for saw.

Manual English uses one sign for each meaning. Thus four different ASL signs are used for the four meanings of call: NAME : SUMMONS : PHONE and SHOUT.

The systems which recur most frequently in the literature include the following:

Seeing Essential English	(SEE ₁)
Signing Exact English	(SEE ₂)
Linguistics of Visual English	(LOVE or LVE)
Manual English	
Signed English	(SIGLISH)

For a fuller discussion of the differences between these systems, you are referred to Wilbur 1976, whence this summary is derived (see References, Page 5).

Royal National Institute for the Deaf have a leaflet entitled "Methods of Manual Communication used in Britain and America", which tabulates some of the differences (RNID, 105 Gower Street, London WC1E 6AH).

PAGET-GORMAN Sign System (PGSS)

PGSS, the first artificial sign system, was developed by Sir Richard Paget, Grace Paget and Pierre Gorman in Britain in the 1950s. SEE_{1&2} and LOVE developed from it. The system is based on pantomimic signs that include 21 hand positions and 39 basic signs used in different combinations. Each basic sign serves to group together signs with a common concept, eg FOOD, ANIMAL. It has its own grammatical rules which correspond to those of spoken English, eg the past tense is formed by combining the present tense form of the verb + tense markers.

Originally designed for use with the deaf, PGSS is now one of the two main systems in use in the UK, with a variety of handicaps, including mental retardation and developmental language disorder. It possesses all the advantages of a signed English system, having a logical relationship to spoken English and providing a channel for the teaching of language skills and reading. The system is flexible, children of varying ability can lock into whichever level a teacher feels is appropriate. A severely retarded child would only be required to respond to and imitate single words and root forms of signs, whereas at the highest levels of a programme, complete sentences are signed and spoken.

PGSS is taught through courses. It has the reputation of being difficult to learn and there is certainly more to learn than with a selected vocabulary such as Makaton. PGSS uses a large number of "two hand different" signs (where each hand performs a different movement) and there is some evidence from the Thomas Coram Research Unit that these signs are intrinsically more difficult to make than "two hand same" or one handed signs (see the unpublished paper by Kiernan, below). However, any system which aims to translate spoken English grammar accurately is going to require an effort of learning, and there is no evidence that PGSS presents greater difficulties than any other signed English system.

References

Paget, R., Gorman P. & Paget, G. (1968)

A systematic sign language

Royal National Institute for the Deaf, London

(The title was changed to "A systematic sign system" in 1971)

Craig, E. (1978)

Introducing the Paget Gorman Sign System

Ways and Means, published: Globe Education Ltd. pp.162-163

Rowe, J. (1978)

The Paget Gorman Sign System: Manual communication as an alternative method

Ways and Means, published: Globe Education Ltd, 1978, pp.164-171

An excellent outline of how PGSS can be flexibly used with a range of multiply handicapped children. Includes programme steps for various categories of language problems, and case studies.

* Chittenden, C. (197*)

The benefits of using the Paget Gorman Sign System

J. of the Society of Teachers of the Deaf, 1976, 22-24 39-4 2

Anecdotal account of the benefits of PGSS, listing its advantages for parents and teachers.

* Ward, G.M. (1975)

A realistic approach to the education of the deaf child.

PGSS and speech used to teach words in experiment, contrasted with speech alone.

Unpublished M.Sc. Human Communication

(available from: See Lambert, J. page 14, for address).

* Fenn, G. (1974)

Language without speech

Paper presented to the AGM of the British Association for Applied Linguistics, Edinburgh, September 1974

* Fenn, G. (1975)

The development of language through signing in children with severe auditory impairment

Final Report to SSRC

* Fenn, G. & Rowe, J. (1975)

An experiment in manual communication

Brit. J. Dis. Comm. 10, 1, 1975, 3-16

These last three papers, reviewed in detail in MVDP Research Information Issue - MENTAL HANDICAP, provide an excellent insight into the programming of the PGSS and the strengths and weaknesses of using signed speech systems.

* Inglis, A.L. (1978)

An appraisal of sign languages and systems and in particular PGSS

Aust. J. Human Comm. Dis. 1978, 6, (2) 43-53

A pilot investigation into the memory coding strategies used by multi-handicapped children learning the Paget Gorman Sign System. Offers evidence that PGSS signs are being coded as signs in memory.

Aust. J. Human Comm. Dis. (1978) 6, (2), 32

See MVDP Research Information Issues - MENTAL HANDICAP: MULTIPLE HANDICAP: PSYCHOLINGUISTICS - MEMORY where this subject is discussed further.

Lambert, J. (1978)

A pilot investigation of factors influencing signing ability in a group of language disordered children using PGSS

2 Volumes, Unpublished M.Sc. Human Communication, Guys Hospital Medical School, University of London

Available from: The School for the Study of Disorders of Human Communication, 86 Blackfriars Road, London SE1

See MVDP Research Information Issue - DEVELOPMENTAL LANGUAGE DISORDER for further discussion of this paper.

Very interesting study of learning of PGSS by language disordered children. Compares LARSP profiles of this group with deaf and normal subjects. Results seem to indicate that PGSS is being used like a 'native' sign language.

Kiernan, C.C.

Characteristics of Signs in Three Sign Systems

Unpublished Paper, Thomas Coram Research Unit

The signs of PGSS, ASL and BSL are compared for a number of structural characteristics.

Results showed that BSL favours one handed signs, ASL two handed signs where both hands adopt the same posture and PGSS two handed signs where each hand adopts a different posture.

ASL and BSL used more movement than PGSS. PGSS and ASL used transformation more than BSL. ASL and BSL favoured simpler hand postures than PGSS. The discussion compares the suitability of use of different systems and offers tentative support for the idea that PGSS may involve rather more complex signs than ASL or BSL. Kiernan suggests that the similarity between the two 'natural' sign languages indicates that similar motor and cognitive characteristics may have affected their evolution.

Further information on PGSS from:

Mrs. Pauline Phillips, Field Officer

33 Banstead Road

Caterham, Surrey

ALPHABETIC SYSTEMS

These systems are specialised for use with the deaf and their potential for application to other handicaps is limited; a brief summary only is given here.

FINGER SPELLING

Twenty-six handshapes are used corresponding directly to the 26 letters of the alphabet. There is no separate syntax, morphology or semantic structure and translation is letter by letter. A two handed system is used in this country and a one handed system in the USA. Combined with speech, it is known as the Rochester method.

Some degree of finger spelling is used in most forms of signed English. It is a useful supplement to signing in communication disorders with clients who are able to use it and can be used with both Makaton and PGSS.

Reference

* Scouter, EL (1967)

The Rochester Method: An oral multisensory approach for instructing prelingual deaf children
AAD 112, 50-55

PHONEMIC SYSTEM

CUED SPEECH

This system was devised by Dr. Orin Cornett in the 1960s to provide a visual analogue of phonemics for use with profoundly deaf children of high to below average intelligence. It is now also being used with a broader group of multiply-handicapped and children with reading disabilities.

The “cues” or hand movements and positions supplement and differentiate the information given on the lips. Vowel cues are represented by hand position and consonant cues by hand configurations. The lip shape indicates which is the consonant, whereas the hand position indicates the following vowel.

Cued Speech bears no relation to the written form of English and is used to develop appropriate verbal skills in the hearing impaired. The rule in Cued Speech is that you cue every sound as it is pronounced and not as it is spelled. The cues for give it to me would be “gi vit tuh mi”.

References

Cornett, R. On (1974/5)

“What is Cued Speech?”

Gallaudet To-day, Winter 1974/5

* Dixon J. (1976)

Cued Speech : Its history, nature and possible potential

J. Soc. T. Od. 1976, 22-24, 12-30

Dixon, J. (1978)

Cued Speech

In T. Tebbs (Co-ordinator) Ways and Means

Published Globe Education Ltd.

Further information from:

Mrs J. Dixon, Principal

The National Centre for Cued Speech

London House

68 Upper Richmond Road

Putney, London SW1 5 2RP

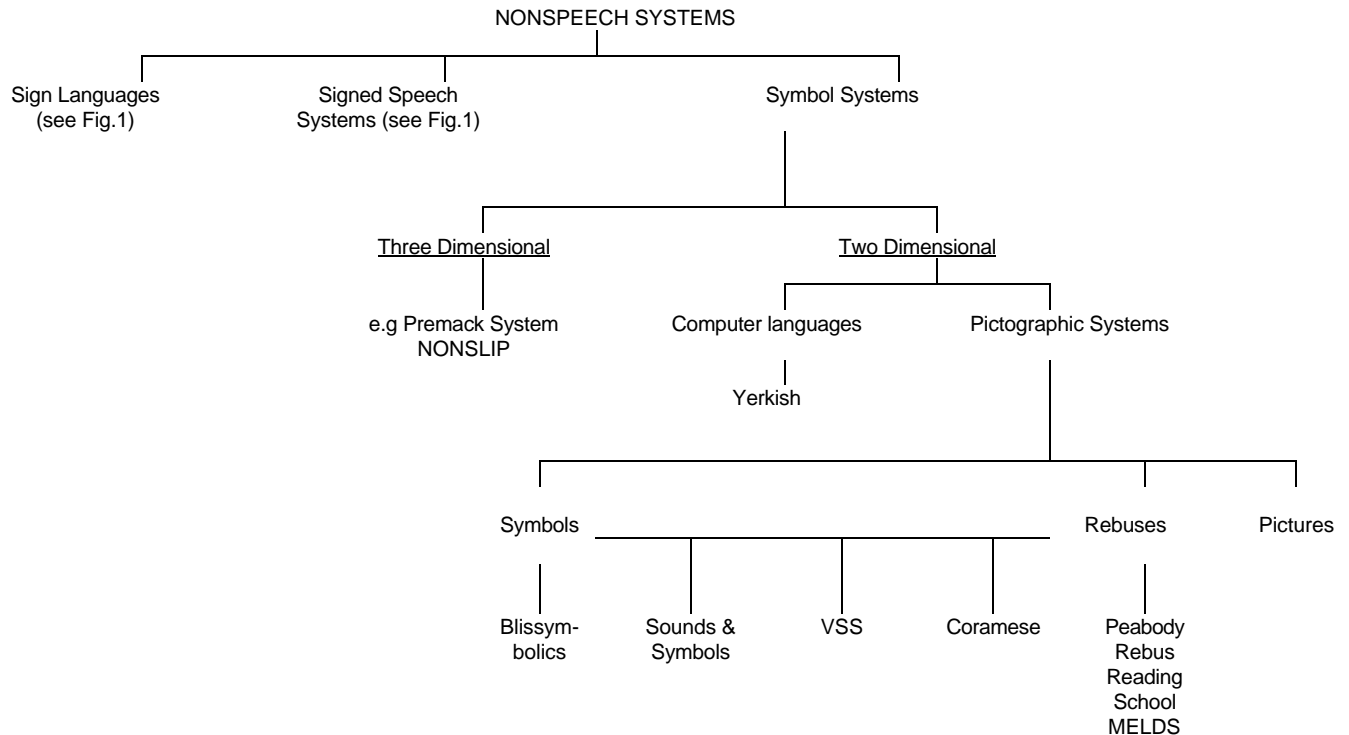
Tel: 01-870-5335

SYMBOL SYSTEMS

Representational symbol systems can be divided into those using solid plastic shapes and those using pictographs, together with some form of communication board. The origins and applications of these two subgroups differ but all can be flexibly adapted to meet the needs of a variety of handicaps. Symbol systems have the advantage over sign that no effort of productive memory is involved, since the symbols are continuously present. Thus technically, there could be more opportunity to concentrate on the form of the message and the symbols themselves can function as an aid to memory. Furthermore, since it is usual for the symbol to be accompanied by the written word, no effort is required on the part of the interlocutor to learn the system, which is immediately accessible. The main disadvantage of symbol systems is the requirement for some kind of communication board for presentation, which limits the number of

symbols which can be presented at any one time, slows down communication and restricts its focus. Signing is infinitely more efficient, but may not be accessible to certain handicaps (see Fig.3).

FIGURE 3: NONSPEECH SYSTEMS – SYMBOLS



The principle of Total Communication needs to be borne in mind when considering symbol systems, since it is all too easy to fall into the trap of focusing on the use of the system and ignoring attempts at gesture and vocalisation.

Three Dimensional Systems

The following systems were developed as ways of teaching language skills, rather than as aids to communication. Their use is specialised and educational.

PREMACK System

The use of plastic symbols to teach language skills, arises from the work of David Premack with chimpanzees. He approaches language from a behaviourist view-point, seeking to identify the defining functions of language (eg sentence, question, negation) and the rules for producing them and then designing a system for teaching these which by-passed the physiological limitations of primates.

The main contributions of this work to the treatment of communication disorders have been:

1. A new perspective on language, whereby spoken language is seen as only one of a number of alternatives and linguistic goals are very clearly and simply defined.
2. A teaching method which identifies the most basic level at which language can be taught - the required responses include perceptual awareness of symbol and referent: ability to match to sample which can be taught as a pre-linguistic skill, and ability to move the

symbol. A very simple level of language can therefore be made available to low-functioning non-verbal individuals.

References

Deich, R.F. & Hodges, P.M. (1977)

Language without speech, Souvenir Press, 1977

A useful introduction to the use of symbol systems with retarded clients emphasising communication functions, including general information on the background to this work, as well as details of the authors' training programmes, reading lists, etc.

Hughes, J. (1974)

Acquisition of a non-vocal 'language' by aphasic children

Cognition 3 (1) 41-55

See MVDP Research Information Issue - DEVELOPMENTAL LANGUAGE DISORDER

Light, PH & Remington, R.E. (1979)

Approaches to language intervention; symbol utilisation by non-verbal autistic children

BPS 32, April 1979, 149

Brief report of ongoing project at Southampton

McLean, L.P. & McLean, J.E. (1974)

A language training programme for non-verbal autistic children

J. Speech & Hear. Dis. 1974, 39, 186-193

See MVDP Research Information Issue - AUTISM

Premack, D. & Premack A.J. (1974)

Teaching visual language to apes and language-deficient persons

In Schiefelbusch, R.L., & Lloyd, L.L. (Ed) Language Perspectives - Acquisition, Retardation and Intervention UPP Baltimore, 1974, pp.348-376

This is a clear and readable summary of the theoretical background and practice of Premack's work.

Velletri-glass, A., Gazzaniga, M.S. & Premack, D. (1973)

Artificial language training in global aphasics Neuropsychologia, 1973, II, 95-103

Premack system used to teach language functions to global aphasics. See MVDP Research Information Issue – APHASIA

NONSLIP

Non-Speech Language Initiation Programme

Carrier, J.K. Jr., & Peak, T. (1975)

H&H Enterprises, Lawrences, Kansas

This programme grew out of Premack's work and consists of a highly structured training programme applying the principles more specifically to the needs of children with severe communication handicaps. At first sight, clinicians may be alienated by the format, since the approach is radically different to that of traditional language therapy. Instead of looking at language developmentally and seeking to teach early communication skills in context, the programme sets out to develop the tactics for learning functional communicative responses, rather than the responses themselves. The authors emphasise that the programme should be viewed 'as a starting point for children who are not able to meet entry requirements for more advanced programmes'.

The child is taught, by means of plastic symbols, which are colour coded for grammatical function, to build up a simple active declarative sentence, such as “the boys are sitting on the bench” and through substituting elements appropriately, to generate new sentences. This is the terminal behaviour. Prior to this, the child moves through a number of finely graded programmes, beginning with matching tasks. Included in the programme are guidelines for training times and error rates, very welcome therapeutic aids.

This is a very impressive package, which has been used successfully in establishing the basis for communication with a variety of clinical conditions, including autism, deafness, retardation and developmental language disorder. The authors report that the approach has been less successful with children with motor problems and with a few children with severe retardation coupled with emotional problems who showed resistance to learning. The authors have developed a set of procedures to establish retention of learning in children with frequent and severe seizures.

The programme is very expensive but take a look at it if you can. The prelanguage programmes are especially interesting and one can learn a lot about how to structure work for clients who repeatedly fail.

Reference

Carrier, J.K. Jr (1976)

Application of a non-speech language system with the severely language handicapped
In Lloyd L.L. (Ed) Communication Assessment and Intervention Strategies UPP Baltimore
1976, 523-548

Two teachers, Val Hands and Winsome Carmichael have recently completed a project using the system, which is written up as a Thesis for the ESN Diploma, Department of Child Development and Educational Psychology, Institute of Education, Wolburn Sq, London WC1. They did not have time to complete the whole programme but the children made very good progress.

Two Dimensional Systems

Computer Languages

“Yerkish” is a computer language of 9 design elements which can be combined, rather like the alphabet, to form word symbols. Again this was developed to teach language to a chimpanzee by the Rumbaugh in the USA. The grammar avoids the kind of syntactic ambiguity which arises in spoken English (eg “I find visiting in-laws boring” - who is doing the visiting?).

Computer languages are unlikely to be put to general use with handicapped people, but there is a pay-off in what the research can tell us about learning factors. For instance, Dr. Savage Rumbaugh has demonstrated that her chimps learned more effectively when they themselves had control over the keyboard and that rote pairing of symbol and reinforcer, when the chimps’ response was a passive labelling, was not an efficient teaching strategy.

References

Rumbaugh, D.M. (Ed) (1977)

Language learning by a chimpanzee: The Lana Project
N.Y. Academic Press, 1977

Parker, D.A., White, R.A. & Warner, H. (1977)

Implications of the Yerkes technology for mentally retarded human subjects in Rumbaugh 1977
op cit

See MVDP Research Information Issue - PRIMATE STUDIES

A summary of this work is given in Deich & Hodges, 1977.

Pictographic Systems

Pictographic systems have been developed to meet two differing needs: the communication of the physically handicapped at all intelligence levels and to teach reading to the retarded.

Teachers and Therapists are now feeling freer to experiment with all types and combinations of non-verbal and verbal communication, so that the functions of these differing systems are likely to overlap increasingly. Note that because the focus of systems such as Blissymbolics and Sounds and Symbols is on communication, there is no preprogramming of content. The focus of the Rebus programme is like NONSLIP, educational, and the teaching is highly structured.

Blissymbolics

This system, developed by Charles Bliss and extended in co-operation with the Ontario Crippled Children's Center in Toronto, has been used primarily as a means of expressive communication for physically handicapped children with at least reasonably good receptive language. There are 100 basic symbols, some pictorial, but mainly abstract, used in combination to express concepts, rather than individual words.

This is the most widely used representational system in the UK. It is the most flexible of the symbol systems in that because the combinations of symbols are limitless, there is no restriction on the ideas which can be communicated. Communication can range from the primitive to the highly sophisticated. However, the client's physical capabilities may limit the system, since considerable visuo-motor ability is needed to identify and indicate over a 1000-symbol display.

Bliss and the Makaton Vocabulary sometimes used together with physically and mentally handicapped people. The Makaton Vocabulary (signing + vocabulary structure) aids the development of comprehension and the child/adult uses Bliss for expressive needs.

References

McNaughton, S. (1976)

Blissymbols - an alternative symbol system for the non-vocal pre-reading child

In Vanderheiden, G.C. & Grilley, K. (Eds) Non-Vocal Communication Techniques and Aids for the Severely Physically Handicapped

UPP London

This handbook is recommended reading for anyone working with the multiply handicapped and contains other articles on the use of Bliss.

Harris-Vanderheiden, D. et al (1975)

Symbol communication for the mentally handicapped

Mental Retardation, 1975, 13, 1, 34-37

This is a treatment study evaluating the use of Blissymbols with a small group of children. Admission criteria are proposed. See MVDP Research Information Issue - MULTIPLE HANDICAP.

Ross, A.J. (1979)

A study of the applications of Blissymbolics as a means of communication for a young brain damaged adult

BJDC, 14, 2, 103-110

Treatment study describing the successful use of Blissymbols with a young anarthric brain damaged girl. Some modifications of the system was necessary. See MVDP Research Information Issue - APHASIA.

Kathy Gunn:

In association with Thomas Coram Research Unit, is undertaking a project to analyse the possible difficulties which physically handicapped children have in learning Blissymbols

Further information on Blissymbolics may be obtained from:

Mrs. E. Davies, L.C.S.T.,
National Advisor,
Blissymbolics Resource Centre, UK
South Glamorgan Institute of Higher Education
Western Avenue
Llandaff, Cardiff CF5 2YB
Tel: 0222-755944

SOUNDS AND SYMBOLS

This programme, designed for cerebral palsied children, employs a combination of 30 symbols and pictures as an aid to the development of language and thinking. The symbols are less abstract than Blissymbols, and the system is based on the principles of classification. Each symbol in the child's 'dictionary' denotes a superordinate category, with pictures or words to represent the individual items. Thus under the symbol for buildings (a rudimentary house) come all words such as home, school, house, hospital, etc. The ability to classify is one of the fundamental skills of thought and language and this programme provides a simple means of teaching it in association with the development of communication. The symbols can be used to build up rudimentary sentences, although these represent a stringing together of concepts rather than any internal syntactic structuring.

This system has potential for those clients unable to apprehend Blissymbols. The method of teaching classifying is very adaptable to other forms of communication.

References

Brereton, B. Le Gay, Burnett, L., & Ivimey, M. (1978) _____

Cerebral Palsy: Sounds and Symbols, Stage 1, Mosman: Spastic Centre of New South Wales, 1978 and: The everyday dictionary (ibid)

Available from: RNID

Brereton, B. Le Gay (1978) _____

Can a symbol system help children with impaired hearing?

ATD 1978, 19, 42-46

Sounds and symbols programme applied to the partially hearing.

MVDP-VISUAL SYMBOL SYSTEM (VSS)

This was devised in 1976 by Jane Lovie and Margaret Coupe, Speech Therapists, Botleys Park Hospital, Surrey, for use with severely physically and mentally handicapped children and adults who had difficulty in producing intelligible speech or precise signs.

The symbols are simple Line Drawings of the concepts which are taught in sets of four and there are twenty five sets in the total system. The vocabulary is based on Stages 1-4 of the Makaton Vocabulary with additions specific to the needs of the client.

The symbol system is used with BSL signs and speech, aiming to provide one vocabulary, but three possible ways of communication. Further development of this system is being undertaken. For information contact: MVDP (address page 8).

CORAMESE

This is the name of a set of symbols in use at Thomas Coram Research Unit in a combined sign and symbol programme. The underlying rationale for these derives from work on mnemonic strategies, which suggests that, in teaching association of pairs of stimuli, a presentation which blends elements from both stimuli is most effective. A Coramese symbol combines elements of the sign and the referent - eg the symbol for book is a pair of open hands covered in writing, combining the BSL sign for book with the visual picture of an open book.

REBUSES

This is a term denoting any pictographic symbol including for example, road signs. These can be concrete : a house Rebus for house; relational : an arrow pointing upwards for up; or abstract : the use of - to represent is. The Rebus Reading Series was designed to teach reading to young mental retardates, in which it has been very successful. The system is based on spoken English, so that at times form and meaning conflict; the Rebus for to be is a bee. This can be source of fun for many children bright enough to grasp the play on words, but is potentially confusing for the less able.

MELDS is a receptive language programme for young hearing impaired children with little or no language, which combines Rebuses and ASL signs based on meaning rather than sound, so that there is no conflict between form and meaning. It has also been used with developmental language disorder and severely retarded children.

Rebuses in their present form need adaptations before they can efficiently be used on a communication board; however, the Rebus principle can be used in designing systems, as indeed it is in Sounds and Symbols; VSS and Coramese.

A project using Rebus materials in the development of communication by mentally handicapped children is being run by Ken Jones at Redland Polytechnic, Bristol.

Rebus readers and materials are available from:

Educational Evaluation Enterprises
Queen Anne House
Queen Street
Bristol BS1 4AE
Tel: 0272-293083

References

Clark, C.R. & Woodcock, R.W. (1976)

Graphic systems of communication

In Lloyd, L.L. (Ed) Communication Assessment and Intervention Strategies
UPP Baltimore, 1976, 549-605

Clark, C.R., Noores, D.F. & Woodcock, R.W. (1975)

The Minnesota Early Language Development Sequence (MELDS)

Research, Development and Demonstration Center in Education of Handicapped Children
University of Minnesota, Minneapolis

Clark, C.R. & Greco, J.R. (1973)

MELDS Glossary of Rebuses and Signs

Research, Development and Demonstration Center in Education of Handicapped Children
University of Minnesota, Minneapolis

Can be used as a resource list for combining Rebuses and Signs.

PICTURES

The use of pictures as a communication tool is fundamental in most work with the handicapped. They are immediately accessible and appealing to clients with a mental age over 18 months or so, and can be chosen to suit the needs of the individual, eg photographs. As the most basic two dimensional form, they can be used to develop understanding of symbols, the client progressing through photograph - picture - line drawing - Rebus - symbol. Only primitive communication is possible, however, and when a communication board is used, they take up more space than do symbols.

TABLE 1

DIFFERENCES BETWEEN SIGN SYSTEMS AND SYMBOL SYSTEMS

	SIGN SYSTEMS	SYMBOL SYSTEMS
1	<u>Dynamic</u> : message is transitory (although an individual sign can be held)	<u>Static</u> : presentation of the message is constant
2	User must encode signs for production from memory	User needs only to identify symbols from display
3	<u>Individualised</u> : signs vary according to personality and physical abilities of user. May affect intelligibility	<u>Standardised</u> : as long as pointing is accurately controlled, intelligibility is not affected by individual ability
4	Client must have reasonable manual skills	Manual skills are not necessary. Only some kind of pointing (e.g. head, foot, eye) necessary
5	Communication aids not required	Communication aid required
6	Meaning is esoteric (with exception of concrete signs). Interlocutors must be trained to understand and use system	Meaning is conveyed through accompanying printed word. No need for interlocutors to be trained to understand system
7	Generative: communication is limitless. Any new idea can be expressed in sign	Communication is more restricted (with exception of Bliss)
8	Economic: ideas can be expressed quickly, through complex combinations and use of signs which have internal linguistic structure (exception Amerind)	Expression of ideas is more cumbersome and slow, symbols being pointed to in succession

These alternatives are not mutually exclusive. They can be combined flexibly to provide maximum communicative power.