

MAKATON VOCABULARY DEVELOPMENT PROJECT

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COLLECTION OF PAPERS, REVIEWS, SURVEYS AND BIBLIOGRAPHIES OF RESEARCH INTO NON-SPEECH SYSTEMS

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SURVEYS AND BIBLIOGRAPHIES OF
RESEARCH INTO NON-SPEECH SYSTEMS**

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NOTE

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BIBLIOGRAPHIES

* Rabush, D.R., Lloyd, L.L. & Gerdes, M. (1982/1983)

Communication enhancement bibliography (Parts I, II, III)

Communication Outlook 3(4), 1, 4-10; 4(1) 4-12; 4(2) 4-12

(Also available on Apple II or TRS 80-111 diskettes through the Artificial Language Laboratory, Computer Sciences Department, Michigan State University, East Lansing, MI 48824, U.S.A.).

This is a comprehensive bibliography of research up to the early 1980's, dealing with symbol systems for communication.

COLLECTION OF PAPERS

Peter, M. & Barnes, R. (1982)

Signs, Symbols and Schools - an introduction to the use of non-vocal communication systems and sign languages in schools.

National Council for Special Education 1982

This is a collection of articles on various non-vocal languages and systems, reprinted from Special Education Forward Trends. An introductory article by Dr. Kiernan considers the appropriate selection of systems, in the context of recent studies on the normal development of communication.

The following articles are included:

Kiernan, C., Communication, Signs and Symbols 2-7

Kyle, J. & Wall, B. British Sign Language 8-12

Rowe, J., The Paget Gorman Sign Systems 13-15

Walker, M. & Armfield, A., What is the Makaton Vocabulary? 16-17

Bailey, P. & Jenkinson, J. The Application of Blissymbols 18-21

van Oosterom, J. & Devereux, K. REBUS at Rees Thomas School 22-24

Kyle, J., Signs of Speech: Cooperating in Deaf Education 25-31

Jones, L., Reid, B. & Kiernan, C., Signs and Symbols: The 1980 Survey 33-36

REVIEWS OF LITERATURE

Three recent reviews of the literature are listed here, all cover substantially the same ground, but with a different orientation.

Kiernan, Reid & Jones offer the most up-to-date general overview of the literature. Bonvillian & Nelson's review goes into more detail, and extends to cover some of the research done into the neurological basis of signing with deaf aphasics, and to consider possible cognitive prerequisites for language. Remington & Light's review focuses chiefly on the problems of research, and methodological issues, arising from the literature on autistic children.

Bonvillian, J.D. & Nelson, K.E. (1982)

Exceptional cases of language acquisition in Children's Language Vol.111, Ed. K. Nelson, Gardner Press 1982

A comprehensive review of studies up to 1980 on the acquisition of signs and symbols by autistic, aphasic, mentally and multiply handicapped populations. Criticisms are made of these studies, particularly regarding documentation of variables, and there is a call for more systematic longitudinal case studies.

The authors also consider the literature on deaf aphasic adults, in reference to the neurological processing of sign. Studies of sign language acquisition by young deaf children are reviewed which suggest that gestural languages develop earlier than vocal.

Comments

This is a useful background paper, especially for anyone wishing to familiarise themselves with the relevant areas and arguments in the field of non-oral communication. Some of the conclusions, particularly those relating to the relationship between cognitive development and sign language may be modified by subsequent research.

Cooney, A. (1985)

Nonverbal communication systems and their use with mentally retarded people
In A. Ashman & R. Laura (Eds) The Education and Training of the Mentally Retarded, Croom Helm 1985

Chapter 1

In this chapter, research on the use of nonverbal communication systems is reviewed with particular reference to practical considerations which affect implementation - selection of clients, systems and vocabulary; and teaching methods, including ways of presenting signs and speech, formal and informal approaches, strategies to promote the generalisation of what has been learned, and the use of programmes to train prerequisite behaviours. The role of motoric factors and iconicity in the selection of signs, and the question of cognitive readiness for signing, are discussed in detail.

This is an extremely useful and comprehensive summary of the critical issues involved in teaching augmentative communication; particularly relevant in highlighting the aspects of most interest to practitioners. It also offers a very up-to-date bibliography.

Kiernan, C.C. (1983)

The use of non-vocal communication techniques with autistic individuals J.C.P.P. 24
3, 339-375, July 1983

See for comments, RIS, II, 6, Autism and Non-Speech Systems of Communication 2.

Kiernan C.C., Reid, B. & Jones, L. (1982)

Signs and Symbols Use of Non-vocal Communication Systems Heinemann
Educational - Studies in Education II Chapter 2 14-73 1982

The book opens with a short introduction to the sign and symbol systems used in schools in the U.K. This is followed by a comprehensive and highly critical review of experimental research up to 1980. This indicates the deficiencies of previous studies and serves to clarify some of the basic criteria which subsequent research should meet, in terms of subject description, method and outcome. Positive practical guidelines for researchers are suggested.

Each section is concluded with a summary, making it easy to assimilate the information.

* Orlansky, M.D. & Bonvillian, J.D. (1984)

Recent research on sign language acquisition implications for multi-handicapped hearing impaired children

JNSSLHA 11(1) 72-87, 1984

The authors consider the appropriate use of sign training for 3 groups of students; multiply handicapped and deaf-blind; autistic and adult aphasics. Recent research on the acquisition of sign language is presented, and used to refute the argument that Piaget's sensori-motor stages must have been completed by a student before he can learn to sign. The authors maintain that 3 skills are needful:

- (1) ability to recognise an object or event
- (2) the ability to remember the appropriate sign
- (3) the desire to communicate about, or name an object.

The role of iconicity in sign language acquisition is discussed, and disputed by the authors. Other factors which may influence learning are listed - the visibility of the sign, the movement pattern, the frequency with which it is used, and the teaching programme.

Comment

It is arguable that in order to have the desire to communicate, a child must have some successful experience of communication on which to build. Motivation may be developed through careful, reward-based teaching, and may not be initially present (see Wilson (1983), P18, II, 7, for an example).

Remington, B. & Light, P. (1983)

Some problems in the evaluation of research on non-oral communication systems in *Advances in Mental Handicap Research*, Vol.2

Ed. J. Hogg & P. Mittler, John Wiley & Sons Ltd. pp.69-94, 1983

In this paper, methodological problems associated with research into non-oral communication systems are discussed in relation to the historical development of this field of study. The use of these methods with mentally handicapped and autistic subjects who had failed in traditional, speech oriented programmes, coincided with the emergence of studies indicating that these conditions may involve specific deficits affecting processing and production of speech, which would differentially retard speech as compared to a visually based communication. At the same time, linguists were discovering through the study of signs used by deaf people, that language is not dependent on the modality of speech; and work with the great apes indicated that they could be trained to use language like communication through signs and symbols. (The authors prefer to use the terms formed and preformed sign systems for what are more usually termed signs and symbols.)

From this perspective, some of the differences which have characterised research into these two categories of non-oral communication become more readily explicable. Research into the use of symbols (preformed signs) derives largely from the work of Premack, whose primary goal was to demonstrate potential for linguistic capacity in apes. Common to such programmes are highly restricted vocabularies, and very structured training steps under the control of the experimenter. This results in very accurate documentation of training procedures, and lends itself to 'pure' or 'basic' research, because of the potential for controlling stimuli. However, failure to demonstrate generalisation of skills learned outside the training situation, limits their applicability to the communication needs of individuals. By contrast, research into manual (formed) sign systems involves the goal of using signs for functional communication, lending itself to 'immersion' teaching within the everyday environment. The diffusion of variables associated with this kind of approach, appropriate as it is in remediation, makes it difficult for researchers to analyse what is going on.

The rest of the chapter is concerned with an examination of the research literature, chiefly that relating to autistic subjects, which is found seriously lacking in respect of documentation; subject description, training procedures, and the measurement and recording of results. In many cases the authors are able to suggest practical procedures which can help to resolve methodological difficulties.

In conclusion, a plea is made for small-scale, well controlled studies which will help to underpin the expanding clinical use of non-oral systems.

This is a valuable and constructive paper, of particular interest to researchers.

SURVEYS

Jones, L., Reid, B. & Kiernan, C. (1982)

Signs and Symbols : The 1980 Survey

in Peter & Barnes, Ed. Signs and Symbols, 33-36, 1982

Follow-up survey to 1978 and 1979, which asked about the type of system used, broad characteristics of the children taught, and methods and goals of teaching, in schools for the mentally and physically handicapped.

These findings are also presented in the book written by Kiernan, Reid and Jones, 1982.

Kiernan, C.C., Reid, B. & Jones, L. (1982)

Signs and Symbols - a review of literature and survey of the use of non-vocal communication systems

Heinemann Educational Studies in Education 11, 1 1982

Review of Literature

The bulk of this book is taken up with presentation and discussion of results from the surveys conducted by the Thomas Coram team into the use of signs and symbol programmes in schools of the British Isles - in 1978, 1979, and 1980 (results from a further survey in 1982 are given in Reid et al 1983 see below).

The most detailed of these was the 1978 survey, which involved the collection of general information, relating to usage, choice of system, policy decisions of local authorities, and a questionnaire running to several pages which attempted to survey multiple aspects of use - including reasons for choosing a system; numbers and characteristics of children involved; size and duration of programme; arrangement of teaching; approach to selection of vocabulary; inter-relationship of sign and speech use; outcome and evaluation of signing programmes.

Points of importance from the 1978 survey have been noted elsewhere (RIS, I, 2, 2-3). The information is useful in building up an overall picture of patterns of usage; and in indicating areas of relative success, and of concern. It is an invaluable source for lectures, planning research, and implementing programmes.

Comments - Criticisms of Makaton

Criticism of Makaton practice is made at frequent intervals throughout the book. Two areas in particular merit some comment.

Firstly, there is a failure to differentiate adequately between BSL and Makaton, which is persistently referred to as BSL (M). Perhaps as a result of this conflation, it is assumed that Makaton teachers are trying to teach BSL, and there is implied criticism of Makaton workshops which “in effect provide all the instruction necessary to begin to use BSL and the Makaton Vocabulary”, and of ‘experts’ (sic) “whose only acquaintance with BSL is from the Makaton Vocabulary”. The authors comment “this is more or less the equivalent of trying to teach a language from a brief dictionary (p.7-8). It is unclear why the assumption is made that Makaton practitioners are claiming to be experts on BSL: in Makaton literature and in training, distinctions are drawn between the two language forms, and practitioners do not claim to be experts in anything other than Makaton itself, and associated professional skills. The consultants to whom the Project has access are experienced professionals working with deaf people, with long experience of signing, and contact is maintained with the groups of linguistic researchers who are exploring the structure of BSL. The comments in this section do appear somewhat gratuitous and ill-informed, particularly in comparison to the descriptions of other systems, which are not critically appraised in the same way.

Secondly, criticisms are leveled at the structure of the Makaton Vocabulary on the basis of some of the research findings.

Specific questions in the survey related to whether teachers used the vocabulary as the sole source of words taught, or complemented it from elsewhere; and to whether the vocabulary was followed closely (i.e. all stage 1 words taught before stage 2) or flexibly (by changing the order of words, introducing new words, etc.). Of 262 day schools, only about 1/3rd reported that they used the Vocabulary as the sole source of words, and followed the stages closely. In outcome terms, as reported by the teachers and therapists, there appeared to be no difference in the success rate of strict and flexible users.

The authors conclude “from our data there is no evidence to support the idea that strict adherence to the Makaton Vocabulary stages is necessary or that it makes any difference if additional signs are added to the vocabulary”. They go on to claim that, in view of the failure to find differences in outcome related to form of system used (i.e. as between Makaton and Paget-Gorman), although use of signs in itself is important, choice of system is not - “the Makaton Vocabulary is likely to be an irrelevancy”. It is suggested that “in-service training might sensibly be directed at teaching methods and at extending teachers’ and therapists’ knowledge of BSL”.

It could hardly be expected that the proponents of Makaton would react anything but critically to such assertions, and we would not in this instance pretend to impartiality. Nevertheless, there is a serious point to be made regarding the strength of the claims against Makaton, and the quality of the supporting evidence, which consists of reported data.

The problem lies in the lack of checks on the reliability and the validity of the information. Thus in terms of outcome, what is being quantified are the teachers' and therapists' reports of what is going on - how many children are using and understanding how many signs, and in what contexts. Of the 259 schools who replied, 115 kept regular diaries, and a further 110 assessed knowledge of signs at regular intervals. However, 33 schools felt it unnecessary to keep records. There is of course no way of telling how reliable the records were, or how well they reflected what children were actually doing - nor how stable were the criteria of acquisition and use between different schools. It should also be noted that most of the Makaton programmes had been operating for under one year; hence the outcomes described are short-term on the whole.

Some of the ambiguities inherent in the responses to questionnaires can be clarified through follow-up, either by observational studies, or in-depth interviews, and it seems a pity that no such information is available here. Ambiguity is particularly a problem in interpreting the responses to the questions probing use of the Vocabulary. We do not know how teachers and therapists interpreted the questions, and whether people who used the Vocabulary 'flexibly' were introducing a few concepts early in response to a well-attested need, or were teaching in a more ad hoc way. It appears that around 48% of schools adhered to the stage structure, although a number of these either were flexible in their use of signs from different stages, or added words from outside the Vocabulary. 31% are said to use the structure 'flexibly', and the results are ambiguous for around 20% of the schools. Makaton practice allows for the addition of signs, both from within the Vocabulary, and, exceptionally, from outside it, in cases of specific need.

The above strictures do not refer to the research itself, but rather to the inferences which have been drawn from it. The value of these findings, which is considerable, lies in the extent to which they serve as signposts for what is happening in practice - but they are not in themselves very direct reflections of that reality. The strong prescriptions in favour of abandoning the structure of the Makaton Vocabulary are made on the basis of indirect evidence.

A further point arises here. We would concur with the authors that what is crucial to the success of a signing programme is the skill and enthusiasm of the teachers, and that this one variable is likely to outweigh any other, probably including choice of system. Any programme applied with the right expertise and commitment has a high chance of success. Any programme applied halfheartedly by inexperienced practitioners is likely to fail. The authors allow for a 'bandwagon' effect in the take up of Makaton by local authorities, but appear unwilling to consider that it may be features in the design of the Vocabulary - use of a structured, core vocabulary, for example - which allow practitioners to grasp the system, and to learn signing with relative ease. Makaton appears to be tailored to the needs of practitioners as well as to the needs of students; reason enough to be cautious about abandoning the very features which perhaps make it work.

We would not quarrel with the need to make rationale, more explicit, and to keep in touch with what is happening at the "coalface" of the classroom, the ward, and the home (hence the network of Makaton Representatives).

Publication of these findings has been of value to this Project in indicating areas of need. We would endorse the authors' plea for a better interchange between researchers and practitioners, asking for our part that researchers should not be too quick to jettison practice which has been found effective, on the basis of inconclusive research findings, which are constantly in the process of being updated.

Kiernan, C.C. & Reid, B. (1984)

The use of augmentative communication systems in schools and units for autistic and aphasic children in the United Kingdom
BJDC, 19, 1, 47-62, 1984

This article provides a useful summary of the information contained in the preceding reports on the TCRU survey.

Comments

See pages 10-13, this issue, for criticisms of the survey.

Use of Signed English

For the more able mentally handicapped student, use of a Signed English system which mirrors the grammar of spoken English is advocated by the authors, who feel that Makaton is severely limiting as a system for the child who responds well to sign teaching. "Key word" signing as in Makaton may be the most natural mode of Signed

Speech. Research among deaf and hearing people using Signed English shows that sign + speech are not normally matched word for word, rather, key components are signed and spoken grammatical elements omitted. The two modes are complementary rather than exact equivalents.

(Maxwell & Berenstein, The Synergy of Sign and Speech in Simultaneous Communication) Ref. APP, Psycholinguistics, 6 3-81, 1985/6.

Reid, B., Jones, L. & Kiernan, C. (1982)

Signs and Symbols : The 1982 Survey of Use

Special Education - Forward Trends, 10, 1, 27-28 Research Supplement

This briefer survey represented the final follow-up in the Thomas Coram Study. The main outcomes showed a confirmation in previous trends towards the use of augmentative systems, both signs and symbols. Makaton and Bliss are the most commonly used systems.

THEORY AND PRACTICE

Discussions of the implications of research findings.

Two extended papers presenting research results belong here because of their general context; the focus in both being not so much the research findings per se, but their implications for the development of theory and practice.

Kiernan, C.C. (1983)

The exploration of sign and symbol effects in J. Hogg & P. Mittler (Eds)
Advances in Mental Handicap Research, Vol.2, Section 2, pp.27-68, 1983

This chapter offers a critical comparison of the main non-vocal systems used in Britain, in the light of experimental evidence provided by the research at the Thomas Coram Foundation.

A brief overview of the systems is followed by suggestions for research strategies, clarifying what is offered by each different approach (e.g. case studies as opposed to experimental research). Programme developers are enjoined to supply data in support of their claims; and at the very least to make clear the evidential basis of their suggestions.

In the following sections, the author draws comparisons first between signs and symbols, and secondly between natural and artificial sign languages. Signs and Symbols are compared on the basis of the theoretical demands placed on the user, rather than on experimental evidence which is on the whole lacking. The one study reported here found no differences in rate of acquisition with normal children. It is suggested that research on the use of symbols to teach linguistic rules be furthered by a comparison employing speech and sign, whereas surveys and observational studies can offer information on the acceptability of signs and symbols to users and the general public.

Structural Characteristics of Signs

Natural sign languages (ASL, BSL) and a contrived sign system (Paget-Gorman) were compared by Kiernan on the basis of their structural characteristics; types of hand postures; use of one handed and two handed signs, the latter subdivided into those with identical, and differing hand postures; movement, and use and type of contact.

To summarise, it was found that the two natural sign languages showed striking similarities, using relatively more flat hands, fists, and index finger hands, less two hand 'different' signs than Paget-Gorman, less hand-body contact and more movement and hand-face contact. The systems coincided in their use of movement in signs, types of posture-movement combinations, and use of hand-hand contact. (See RIS, II, 1, Linguistics of Sign Language for information on phonological structure.)

In a series of experimental studies, Kiernan & Bowler investigated the ability of mentally handicapped children to imitate and learn receptively and expressively specially contrived signs which exemplified these features. It was found that the 3 handshapes (see above) used most in ASL and BSL were also those which were the easiest to imitate, and learn. Two hand different signs were more difficult than either one hand or two hand same. Contact conditions did not have any significant effects on learning, in contrast to previous research, nor did movement on receptive learning.

Studies on the development and perception of distinctive features of signs, in conjunction with the findings referred to here, suggest that hand shapes which are easy to identify and to make should be taught first in programmes, with a gradual progression to the more difficult signs.

Iconicity of Signs

Studies on the effects of iconicity of sign are next reviewed, and a clear exposition is given of the difficulties in researching this area, and in interpreting the results. Numerous factors interact with the iconicity of a sign, including its structural characteristics and how concrete or abstract is the concept denoted by the sign. Iconicity may be rated either on a dimension of transparency (how easily a sign's meaning can be guessed by a non-signer), or translucency (the degree to which a non-signer can describe an association between the form of the sign and its meaning). There is some evidence that translucency which reflects associations made by an individual, rather like a mnemonic, is a more salient factor in learning signs than transparency.

Kiernan concludes that iconicity may not be very significant below a certain stage of development, although further research is needed.

Transfer From Sign To Speech

Studies are next reviewed concerning the transfer of sign and symbol proficiency to speech. Reported data indicates that about 1/3rd of students spontaneously develop speech after being introduced to sign/symbol programmes. However, the overall poor reporting of case studies make such findings difficult to interpret.

Modes of presentation, as advocated by different practitioners are compared. Two assumptions underlie the use of total communication, or signed speech programmes where every word spoken is signed namely, generalisation from receptive to expressive speech and transfer from expressive signing to expressive speech.

It is suggested that the rationale behind key word signing, as may be employed in the Makaton teaching, for example, is unclear. The analogy with normal speech development has no logical consistency, since the speech, but not the sign model provided by the adult is complex, and the sign system is self-limiting. The approach adopted by Skelly, message first spoken then signed, and the use of sign alone as a medium for education, are described briefly without comment.

The experimental evidence for differing modes of presentation is considered, in particular studies with autistic children suggesting that overselectivity in the presence of combined auditory and visual stimuli may play a crucial role (see RIS, I, 5, Introduction). It appears from this research that "indiscriminate" use of total communication will not necessarily be effective in promoting speech skills. The ability to vocally imitate may be an essential precondition, and there needs to be more research on the relationship between generalised motor and vocal imitation training, particularly with mute children, focusing on possible pre-requisites in terms of sound production and control.

It appears that signing is easier to prompt than speech. Experimental work by Reid is described which indicates that signs may act as mediators for word learning. Reid found that mentally handicapped children on the whole learned sign labels more rapidly than words, and that children who learned signs first found words subsequently easier to learn. In learning the signs they seemed to have grasped the principles of labelling, which transferred to their word learning. Other research on the use of signs as mediators (e.g. by Bucher & van Biervliet, see RIS I, 3) suggests that training makes signs and words functionally equivalent.

Kiernan turns next to studies on symbol use, which as he notes, are characterised mainly by the recording of precise training sequences, as opposed to communicative use. Most attention is paid to the question of symbol use to promote reading skills, and a model is described as a framework for assessment and teaching. The final experimental question addressed is receptive expressive generalisation. Current research findings suggest that reception and production may be two separate skills, and should be taught as such.

Kiernan then discusses some of the limitations of experimental studies, which tend to be formulated in behavioural terms - he comments on the lack of studies using an information-processing model*. In conclusion, the difficulty of integrating research findings and clinical practice is noted; there is a need for practitioners to be aware of research, and for the research to be relevant to clinical needs.

Comments

This chapter appears to reflect the dilemma of a researcher concerned with the theoretical formulation of problems and solutions, and as a result his critique sometimes fails to take account of realities which practitioners find apparent. Some of these are as follows:

1. Criteria to be adopted by programme developers

It is noteworthy that the only programme described as approximating the somewhat stringent requirements laid down here is NONSLIP. This, as described by Remington & Light (1983), (see below), is a very restricted programme, which allows the trainer a high degree of control over the students' responses at the expense of the functionality of the system as a means of communication. Criteria such as the specification of the average number of trials to learn each step, and variance of performance, seem more appropriate to programmes of this kind than to the more fluid behaviours involved in communication, where motivational and situational factors will assume more importance. Such criteria might, or might not, be desirable additions to sign programmes - some acknowledgement of the formidable difficulties involved, and a discussion of their appropriateness, would have been useful. In general terms, it is clearly desirable for practitioners to make explicit the assumptions underlying the design of programmes, together with evidence to support claims of effectiveness.

*Work at TCRU suggests that children may have stable modality preferences, possibly related to brain function.

2. Comparison Between Signs and Symbols

The relative demands of signs and symbols are assessed on a very limited basis. Symbols may appear to pose less demands for the user than signs, but this is only true in a restricted context. In actual communication, signs may be preferable; symbols require some kind of portable display which must be scanned; communication is very much slower, and can be frustrating for both partners in conversation; and signing allows for the normal use of body language and eye contact, which may be distorted by the efforts involved in using a symbol board. To say that "in terms of the requirements placed on the users, symbols appear to represent a much less complex mode than signs" is an oversimplification.

See RIS, II, Non-speech Systems and the Multiply Handicapped, for a discussion of research into the problems of using communication boards in classroom settings.

3. Role of Handshape in the Learning of Signs

The proposition that programme developers should take into account the rank order of difficulty in imitating and learning certain sign postures, or handshapes, seems reasonable enough in the light of the experimental evidence. However, the signs used in the TCRU studies were artificial exemplars of particular handshapes. In a real sign, of course, there is an interaction between handshape and at least 3 other parameters:- location, movement and orientation. Whereas there are references in the discussion to movement, and contact (another important feature), this interaction is not considered in any depth, nor is there any acknowledgement of the possible contribution of developmental studies of the errors in formation made by young deaf children learning signs. This group can provide information on normative patterns of sign learning. Work in progress by John Bonvillian confirms some of the TCRU findings on handshape, but also suggests the kind of errors which are made in the dimensions of location and movement. Handshape, although critical, cannot serve as the only criterion of formative ease or difficulty. For example, a sign, like TABLE, employs an easy handshape and location, but a difficult movement.

Secondly, signs involving the easiest handshapes do not necessarily reflect the most useful concepts to teach initially. Except in the broadest sense, we do not select an oral vocabulary on the basis of how easy the words are to articulate. Rather, we accept the child's errors in pronunciation, and guide him (hopefully) towards the adult form. In a real life context, a sign such as BISCUIT, which is quite difficult on all four counts, might be more readily learnt than PAPER, an easier sign, because of motivational factors.

Despite the evidence presented here, we do not really know enough about how real signs are learned to build into programmes selection criteria based on handshape alone. Undoubtedly, as Kiernan suggests, studies using contrived signs can clarify the variables involved; however, these do need to be related to observations of normal patterns of development. Ideally, professionals using sign systems with handicapped populations should have a knowledge of common developmental errors in sign production, just as the Speech Therapist has a knowledge of articulation development. Perhaps in the future this may be possible, to date the studies have involved very small numbers of children.

4. Key Word Signing

Kiernan criticises the use of key word signing on the theoretical grounds that a mismatch between the full speech model, and the incomplete sign model, may be a source of confusion for the handicapped student; although to date there is no evidence that this is the case. Indeed, an unpublished study by Reid found that the precise mode of pairing signs and words had no effect on learning. There are practical advantages to the use of key word signing, which allows the practitioner to start with a small number of signs and build up signing skills gradually, rather than needing to amass the large vocabulary of signs required for true signed speech. Although the term “total communication” is defined here as the simultaneous use of speech and sign, it may be unrealistic to demand that all speech be signed from the start by primary caregivers with other responsibilities - though this may well be a skill which they will attain as their competence, and confidence, increases. In this context, it is puzzling to read that key signing is expressively self-limiting; since there is an obvious potential for expanding the number of items signed in any communication.

As Kiernan suggests however, it is clearly incumbent upon the proponents of the key sign approach to make explicit the rationale and assumptions behind its use. An observational study of the styles of sign communication used in various settings by practitioners would also contribute to our understanding of how best to present our students with “total communication”. To date, the research which has been done on long-term total communication programmes has concentrated on the attainments of the subjects, without any qualitative analysis of the skills of the teachers.

5. Teaching of Receptive and Expressive Skills

The importance of appreciating that understanding, production and use are separate skills, needing separate training, is emphasised throughout the Makaton programme and reflected in practice.

Light, P.H., Remington, R.E. & Porter, D. (1982)

Substitutes for speech? Nonvocal approaches to communication

In M. Beveridge (Ed) Children thinking through language

E. Arnold, Ch.9, 216-238, 1982

This chapter consists mainly of a detailed account of symbol training projects with two low functioning autistic children and one severely mentally handicapped.

The authors begin with an overview of relevant aspects of language intervention, mentioning the problems encountered in designing research with nonspeaking subjects; the hypothesis that autistic and dysphasic people may be suffering from disorders affecting auditory processing; the poor reporting of studies involving manual communication, and the background to the use of Premack symbols. The work of Carrier and of Deich & Hodges is briefly and critically discussed as a prelude to the authors' own work. Particular reference is made to the difficulty of ascertaining from these studies what exactly has been learned and how.

In their account of a training study using symbols, the authors are concerned to clarify precisely this area. Teaching, learning and assessment are carefully and precisely described.

Teaching involved: use of symbols to label concrete nouns, and colour and shape adjectives, and assessment of generalisation of symbols to other exemplars of the same classes of objects; and (with one child) whether the symbols used were truly abstract (unfortunately the term 'transparent' is used here, involving possible confusion with the term as it is used in the literature on iconicity of signs).

The authors found that for one child, failure to learn the noun associations was probably due to an inability to match objects - but performance may also have been affected by his very high initial failure rate. The two other children learnt nouns and adjectives, and were able to generalise these spontaneously to other objects - although the authors point out that the procedure involved gave little control over the attributes which the children used as the basis for their classifications. Finally, the authors draw a clear distinction between training studies of this kind, teaching skills in isolation, and the communicative use of symbols in everyday life.

Comments

This scrupulously described study comes up with no very startling conclusions, but is a useful reminder of how tenuous may be the assumptions of other research in the field.

It would be of use to anyone interested, or with the time, to explore what their students are learning - particularly symbols - and should certainly be read by anyone planning to write up a case study involving teaching.

TEXT BOOKS

* Musselwhite, C.R. & St. Louis, K.W. (1982)

Communication programming for the severely handicapped : vocal and nonvocal strategies

College Hill Press, 1982

This book reviews a number of issues pertinent to communication training and suggests strategies for planning programmes. Some useful information is included, such as tables of Piaget's sensori-motor stages, the principles for organising a first lexicon advanced by Bloom & Lahey, and research results by Dunn on the "normal" development of some sign features, such as handshape. Consideration is given to areas highlighted by research, such as generalisation of responses, initiation of behaviour, and the role of imitation. Practical measures are suggested for eliminating interfering behaviours, and developing attention skills.

The book's primary relevance is to curriculum planning - there are good sections on assessment and evaluation, and the emphasis throughout is practical, with the design of a programme never taking over from the needs of the client. For example, in relation to the possible use of training in "preliminary" behaviours, they state "we wish to stress that it is important not to wait for the client to be 'ready' for training".

The bibliography of support services and programmes is primarily American orientated.

This is a very useful book - it is unfortunate that the price puts it outside the reach of individuals, but departments should be urged to buy it.