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MULTIPLE HANDICAP AND NON-SPEECH SYSTEMS

Compiled and Written by Nicola Grove, MSc, LCST

Edited by Margaret Walker, MSc, FCST

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INTRODUCTION

RECENT DEVELOPMENTS WITH SYMBOLS

Although there have been no surveys of the use of alternative systems of communication by the multiply handicapped as an independent group, it does appear from the most recent Thomas Coram Research Unit (T.C.R.U.) report that a substantial number of children with severe communication problems are not included in sign or symbol programmes; it seems likely that many of these children are from "special care" classes. However, it may be that the growth in the use of symbols will have an impact on these children. Between 1978 and 1979, according to the team from T.C.R.U., the percentage of ESN(S) schools using symbols almost doubled; and schools for the physically handicapped also increased their already significant usage. At the time of the 1980 survey, Blissymbolics was still the most favoured system, although the use of Rebus was growing. Since then we have seen much interest developing in the reading abilities of the mentally handicapped, through the work of Sue Buckley and others; and the publication recently of the Rebus Dictionary. This summer has also seen the launching of Makaton Symbols, in close association with Rebus, which are matched to the Makaton Vocabulary Stages. As reading becomes an integral part of the curriculum for the less able child, so the use of symbols will expand; and since they can be used simultaneously to promote communication, language and reading, their potential is immense. Symbols, too, can be (and have been) computerised in a way that signs cannot, and this too opens up a new dimension of learning and communicating for the multiply handicapped child as computers become an essential item of furniture in classroom, hospital or home.

It has been customary in the clinical application of research to ask which system .sign or symbol .is best suited to the communication needs of each student. Yet signs and symbols do not have to be alternatives. They complement one another, demanding different skills, and offering different rewards. As the trend (as observed in the 1978-1982 Thomas Coram Research Unit Survey, see RIS II, 8, for further information) to use signs and symbols together increases, we should come nearer to implementing the real goals of total communication .the effective use by and to the student of all modalities of communication that are open to him.

NOTES OF THIS ISSUE

The first section deals with research into the use of signs and symbols with multiply handicapped people; the second considers, for the first time, the growing body of research into their use with the deaf-blind.

Papers can be obtained from:

* The Librarian, R.N.I.D., 105 Gower Street, London WC1E 6AH

The Librarian, B.I.M.H., Wolverhampton Road, Kidderminster, Worcestershire

USE OF AIDED COMMUNICATION WITH MULTIPLY HANDICAPPED STUDENTS

In theory, there are considerable advantages to the use of symbol systems as the primary channel of communication. Because the symbols are continuously present, there is no need for the student to recall them from memory, unlike signs. Because only an orienting response is required, students do not have to produce complex handshapes; and the teaching of symbols can be highly systematic, with responses under the control of the teacher – once the student can match picture to picture, the stimulus material can be progressively altered towards a more symbolic design.

As with signs, however, there is a profound difference between a teaching session, and natural communication. Use of symbols is always dependent on the use of some sort of transmission device (hence the term “aided systems”), so that the student does not only have to learn how to use the symbols, but how to use the aid within communicative interactions. There is increasing evidence of the difficulties posed by this task. The papers by Harris 1982, and Calculator & Dollaghan 1982, in particular, illustrate how rare is the effective use of communication boards within a classroom. As might be expected, students are more effective as respondents than initiators, even when trained in pragmatic skills (Mazur & Long 1983). It is apparent that not only the students, but their teachers, families and non-handicapped peers, need quite extensive training in how to communicate via aids. Strategies are suggested in the papers by Bottorf & DePape, and Wishart; and it is useful to begin with a model of communication, such as that proposed by Beukelman & Yorkston. The most important principle, brought out in all of the papers under consideration, is that of total communication. In our anxiety to promote the use of symbols, it is all too easy to attempt to suppress, inappropriately, an already established communicative signal – as in Harris’s example of a teacher telling a child to use his communication board instead of shaking his head for “no”. Calculator & Dollaghan suggest that boards are difficult to use because they are deficient in those aspects of communication normally indicated by tones of voice, facial expression, natural gesture and so on; skills which will be problematic for multiply handicapped people but which may be taught within the range of resources they have. Economy of effort is a determiner of communication behaviour for physically handicapped people; a factor often overlooked when it is assumed that pointing to a symbol is easier than forming a sign.

Comparing communication via aids to the processes of normal communication can help to identify areas of potential difficulty. The paper by Morris concentrates on mealtime communication, and shows how normal feeding interactions are disturbed for the multiply handicapped child. She offers some helpful suggestions about the use of total communication in this setting, again emphasising that we must exploit all the resources which are potentially available for the child's communication.

The paper by Hurlbut et al also includes information on spontaneous use, but focuses on a comparison of the learning of iconic pictures and abstract symbols. Iconic pictures were easier to learn, to remember and to generalise than Blissymbols, and it is suggested that they be used in initial teaching, with subsequent systematic transfer to symbols when communication of complex and abstract concepts is needful.

MULTIPLE HANDICAP AND NON-SPEECH SYSTEMS

*** Beukelman, D.R. & Yorkston, K.M. (1982)**

Communication interaction of adult communication augmentation system use
T.L.D. 2 (2) 39-53 (1982)

This paper considers in general terms some of the factors involved in developing the communicative potential of non-speaking physically disabled adults who are dependent on aided systems. Intelligibility, rate of transmission, and accessibility are considered the three most important dimensions, and are discussed in relation to both the sender and the receiver of the message. The importance of training communication partners in how to avoid and resolve common problems, is emphasised. Preliminary results are described of a survey of vocabulary use by adults with Canon communicators. A list of the 100 most frequently occurring words represented approximately 60% of the total sample; 500 represented 85%. This is encouraging, since it suggests that with a small list of words, users can create a large proportion of the messages they wish to send.

*** Bottorf, L. & DePape, D. (1982)**

Initiating communication systems for severely speech-impaired persons
T.L.D. 2, 2, 55-71 (1982)

This paper offers some practical guidelines for implementing communication with aided systems. Strategies for assessment, intervention, and enhancement of communication are discussed, with the emphasis on tailoring existing systems to individual needs. Some valuable points are made about the differences between verbal interchanges and those with aided systems; and about the importance of accepting the user's habitually successful interaction strategies – they remark that “an individual should not be required to substitute a whole new system for their present successful mode”.

Calculator, S. & Dollaghan, C. (1982)

The use of communication boards in a residential setting an evaluation
JSHD 47, 281-287 (1982)

This study examined the use of Blissymbol communication boards by seven non-speaking multiply handicapped students interacting with their teachers in a classroom setting. All were capable of using their boards to initiate and respond within a conversational framework, and of generating up to five symbols at a time. All functioned cognitively at a pre-operational level (MA 2-3 years). The students reliance on the boards was analysed relative to non-board communication, such as gestures.

A topic-based analysis was used to identify initiations and responses, related to the distinction between old and new information.

The main findings were as follows:

- (1) Non-speaking students rarely used their communication boards in interactions, despite being able to do so. It was unclear whether the boards were not used because they did not improve communication, or whether the boards were ineffective because they were infrequently used.
- (2) Use of the board neither increased the likelihood of success of messages, nor decreased the ambiguity of the messages – teachers requested clarifications just as often when the board was used, as when other means were used.

This may be because the boards are inadequate to convey the pragmatic content of messages, normally signalled by facial expressions, intonation and so on. For the boards to be used unambiguously, experience must often be shared between teacher and student, and this restricts the possibility of students initiating new topics.

- (3) Students were more successful as respondents than initiators – teachers were more likely to respond to students responses, perhaps because they had selected the topics, and therefore understood the conversation more easily than when students initiated. The authors conclude that the lack of initiation by non-speaking people, also noted elsewhere, is related to the lack of success they experience in this role.

Critical Points

It would be useful to know the mode of selection used by the students, and the degree of effort involved, since this undoubtedly plays a part in how readily a communication board is used.

*** Evans Morris, S. (1981)**

Communication/interaction development at mealtimes for the multiply handicapped child : implications for the use of augmentative communication systems
LSHSIS, 12, 1-2, 216-231 (1981)

Mealtimes can become negative and frustrating for the handicapped child and his caregivers, obsessively focused on the need to get as much food down as quickly as possible. In this extended discussion of the potential for communication which mealtimes hold, Evans-Morris first places feeding in the context of normal communication development, and the cognitive behaviours, such as means-end, object permanence, involved. She considers the source of difficulties which arise for the multiply handicapped child, and strategies for overcoming them. Finally, she considers how mealtimes can be used to foster the skills which are necessary for augmentative communication (which she identifies primarily with communication boards, for these children).

Comment

This is a very stimulating and relevant paper for anyone working with multiply, or indeed only mentally, handicapped people.

*** Harris, D. (1982)**

Communicative interaction processes involving non-vocal physically handicapped children
T.L.D. 2 (2) 21-37 (1982)

The paper begins with discussion of a theoretical model of the interaction process, and the potential problems involved when an aided system is used. Harris goes on to give an account of an exploratory study which examined non-vocal children's communication processes in the classroom. The results illustrated the discrepancies between potential, normal interactions, and those which actually took place. Teachers were dominant in exchanges; the children rarely took the initiative, or interacted with their peers. Responses tended to be in single units, and children typically preferred to use the mode of communication involving least physical effort (a gesture, or headshake, for example), rather than the most unambiguous. Often the teachers would then demand use of the communication board, and the child would refuse to participate. The most common communicative functions used by the teacher were instructions, statements, and questions, and by the children, responses.

The author concludes that the provision of an augmentative device is not sufficient to promote effective communication - all modes available to the individual should be exploited.

*** Hurlbut, B.I., Iwata, B.A. & Green, J.D. (1982)**

Non-vocal language acquisition in adolescents with severe physical disabilities Blissymbol vs. iconic stimulus format
J.A.B.A., 15 2 241-258 (1982)

This study compared the training of Blissymbols and iconic line drawings with 3 severely multiply handicapped adolescents. Their receptive language was assessed as 2.5 months (2) and 13.5 months (1), though staff rated them more highly. Expressive language was severely limited to the use of between 1-3 Blissymbols, after 1 year's training. All use communication boards.

Method

Following a period of baseline assessment, and pre-training behaviours needed to comply with the programme, 20 items (objects and body parts) that the students could consistently identify were selected. 10 were designated for training 5 represented by Blissymbols, and 5 by pictures. All 20 symbols, and all 20 pictures, remained on the boards throughout the study. This allowed for any generalisation by the students to be assessed.

An "alternating treatments" design was used, involving brief periods of training in each mode, one after the other, in order to eliminate the effect that might result from prolonged exposure to one treatment. As well as the training trials, review trials were used to maintain previously learned items, and probes (tests) were conducted to assess how well they were maintained.

Stimulus generalisation was assessed, once an item had been learned, by presenting an object from the same stimulus class as that used in training (e.g. a cup of a different colour).

Response generalisation one probe per day was taken on the 10 untrained items, by presenting an object/touching a body part, and seeing whether the student could identify the corresponding symbol/picture. This assessed the extent to which students could generalise on the basis of the training itself, and which mode they preferred.

Spontaneous usage of the communication board. Both trained and untrained items, were monitored and reinforced.

Results

The iconic line drawings were superior to the Blissymbols in facilitating the development of non-vocal language skills across all measures. Iconic pictures were learned more quickly, and maintained more easily. Stimulus and response generalisation occurred in both modalities, but was greater for pictures. In the case of response generalisation, it is suggested that this reflects the use of a generalised "match to sample" skill, which is facilitated by the use of pictures. Students made more spontaneous use of pictures than Blissymbols, and whereas all the symbols used spontaneously had been directly trained, a large number of the pictures used in this way were untrained items, or items trained via Blissymbols.

It appears that iconicity, defined here as a formal similarity between a representational stimulus and its corresponding object, can facilitate multiple aspects of learning.

The authors suggest that use of an iconic picture system has advantages in the early stages of learning to communicate and can help to strengthen communication skills. Such a system is limited in its potential for the expression of complex verbal ideas. They favour the initial use of iconic systems, followed by the use of abstract systems once simple forms of language are well established.

Comments

- (1) This is a very relevant study for anyone using symbols to develop communication skills. It is important to distinguish between the iconic relationships described here, between picture and object, and those described in the literature on signing, between a sign and an object, where the facilitative effects or otherwise of iconicity in early learning are much less clear.
- (2) Although the use of iconic pictures may be more favourable to the initial learning stage, the authors make it clear that where it is appropriate, transfer to a more abstract system is desirable, because so many concepts cannot be conveyed through concrete pictures. What we need is information about strategies for moving students towards the understanding and use of more abstract symbols.

*** Mazur, B. & Long, A.M. (1983)**

Facilitating pragmatic growth in preschool Blissymbol users
H.C.C. 15 312-315 (1983)

This is a brief account of a three week programme designed to stimulate the pragmatic use of Blissymbols by 6 multiply handicapped children between the ages of 3 and 5 years, whose comprehension ranged from normal to moderately delayed. The pragmatic functions encouraged were answering, giving information, imaginative, interactive, turntaking, making choices, commenting, labelling, requesting and greeting.

In general terms the programme was successful (no actual data is provided). The number of symbols, the functions used, and the situations in which they were used, increased. However, they continued to have difficulty in initiating conversations, and in using symbols spontaneously.

Comment

This paper is useful in focusing on the communicative functions of symbol use, rather than purely acquisition, and the kinds of activity suggested are also relevant to sign language programmes.

*** Spike, J. & Windress, J. (1981)**

Application of signs with speech in the parent infant training programme for young cerebral-palsied children
Aust. J. Hum. Comm. Dis. 9, 2, 19-23 (1981)

Brief report of a pilot study using Makaton with 4 non-verbal children, MA 2.1 –3.6 years, with “depressed receptive skills” and poor attention control. Formal teaching was reinforced by group activities in which parents participated, and use of Makaton at home was promoted. After seven months, results were encouraging. Attention, eye contact, receptive language and vocalisation had increased, and behaviour problems were reduced. Parents and staff were enthusiastic.

Comment

It is unclear whether or not the children had previously been given structured language teaching. More information about prior teaching would place these encouraging results in perspective.

Wishart, K. (1983)

An approach to using Blissymbols for severely handicapped preschool children
H.C.C. 7, 441-443 (1983)

Brief case report of the use of Blissymbols with a 3 year old mentally handicapped girl with spastic quadriplegia. This child was highly frustrated by her inability to communicate. Blissymbols were taught as the need for them arose out of ongoing situations - e.g. during physiotherapy. Two people were often needed to allow her to experience, rather than passively observe, activities - one to facilitate movement and play, and the other to label the experiences for the child.

Comment

Difficult to evaluate this report without more information on the child, and the teaching method.

AUGMENTATIVE COMMUNICATION WITH DEAF-BLIND STUDENTS

The surveys undertaken by Jensema indicate that gesture is the preferred mode of communication by deaf-blind children, for whom the tactile-kinaesthetic channel is all-important. Reliance on touch poses its own perceptual problems, as Jackson indicates in his paper, and it may necessitate the modification of signs which are taught since understandably, "contact" signs are easier than "non-contact" signs for these deaf-blind children to learn (Wilson 1983, Mountain 1984). This finding, incidentally, is also true for mentally handicapped children. The most detailed study is provided by Wilson, and some useful conclusions can be drawn from her work.

It is obvious that the commitment of staff in creating a "signing environment" was critical to the success of the programme. The fact that her group learned to use a number of signs successfully, despite extremely poor performance on initial cognitive testing, illustrates the problems of excluding children from sign teaching which may benefit them because of low ability. It is interesting that some of the children improved their visual acuity, probably because they had learned to make better use of their sight. Finally, the study contributes more information about the factors which influence learning. Initially, motivation and the functionality/familiarity of the sign were important, and the extent to which signs involved touch. Iconic signs were no easier than abstract to learn, although at a later date the use of iconic signs seems to have facilitated the learning of verbs.

The significance of iconicity for deaf-blind students learning signs is explored by Griffiths et al. They conclude that iconicity can be tactile as well as visual, but their theories regarding its role in initial learning are not unfortunately substantiated as yet by actual data on sign acquisition by deaf-blind children. Wilson's findings seem to indicate that iconicity is not all that important at first, but that students may be able to make use of iconic cues at a later date. Theoretically, the idea that signs which "look like" or make the same movements as, their referents, will be easier to learn is attractive. However, even in the case of verbs, it is important to remember that the sign movement for BRUSH HAIR/ DRINK/ BATH/ EAT are stylised, and must be distinguished from actual actions such as rocking or tickling, which Griffiths & Robinson suggest might form the basis of an initial teaching vocabulary.

Although most of the papers discuss signs, a number of people are using symbols with deaf-blind students, and Jackson's paper describes the Cheyne symbol system.

The teaching of signs to deaf-blind children and adults is well advanced in the United States, and some of the practical textbooks are reviewed by Orlansky & Bonvillian.

A final point of importance raised by Mountain in private discussions with the author of this RIS Issue, is the necessity of distinguishing deaf-blind from deaf partially-sighted students (such as Wilson's group appear to be). When Reynell compiled her communication scales for the visually handicapped, the differences between these sub-groups led to the compilation of two separate scales, one for the blind and one for the partially sighted. Readers need to ascertain the extent to which subjects defined as deaf-blind have a degree of functional vision.

Gold M.W. & Rittenhouse, R.K. (1978)

Task analysis for teaching 8 practical signs to deaf-blind individuals

Teaching Exceptional Children, 34-37, Winter 1978

This article offers detailed instructions for moulding (i.e. physically shaping and moving the client's hands) 8 basic ASL signs which might be needed by deaf-blind people (toilet, sit, stand, eat, drink, more, enough) (eat and drink are the same in BSL as ASL). Receptive as well as expressive teaching and the need to teach within the environment, are stressed.

Comment

The selection of signs is somewhat arbitrary, since no rationale is provided .what about "no" for example, which Mountain argues is fundamentally important, but which is excluded here.

Task analysis of signs .breaking down the steps in moulding each sign .could be a useful technique to employ, with other handicapped groups as well.

Griffith, P.L., Robinson, J.H. & Panagos, J.H. (1983)

Tactile iconicity signs rated for use with deaf-blind children
J. of Association for the Severely Handicapped 8 (2) 26-38 (1983)

This study was undertaken to explore the function which iconicity might play in selecting signs for use with deaf-blind learners. Iconicity is defined loosely as any association made by a learner between a sign and its meaning which helps him to recall the sign. On the basis of previous research (see RIS, I, 10, 2-4), the authors contend that the successful acquisition of signs depends, at least partly, on the ability to make these associations; and that mentally handicapped learners tend to make similar associations to other groups - deaf and hearing children and adults.

Here they investigated whether signs which were visually iconic were also tactilely iconic, by presenting signs to blind adults of normal intelligence, and comparing their ratings of iconicity with those of deaf and hearing subjects. Next they investigated the hypothesis that early sign vocabularies would be highly iconic, by asking the blind students to rate the sign lexicon devised by Fristoe & Lloyd (1979) for iconicity. Finally they looked at the interaction of iconicity with grammatical class.

Results showed that, overall, signs were rated similarly by blind and by sighted people. This suggests that iconicity is perceived tactilely as well as visually, and could therefore be functional in the learning of signs by deaf-blind people. The lexicon of 100 signs devised by Fristoe & Lloyd was judged to be highly iconic by the blind students.

Analysis by form class showed that prepositions were highly iconic, and verbs were more iconic than nouns or adjectives. This finding bears out previous research which suggested that iconic verbs were the easiest group of signs to learn (see Konstanteras et al 1978, RIS, I, 4, 22-24, and Wilson 1983, this Issue).

In their discussion, the findings are considered in relation to a theory of conceptual development proposed by Nelson (1974). Nelson suggests that early concepts arise out of actions with objects and interactions with people. These experiences become a “core” of associations, of functions and attributes, to which the child subsequently attaches labels. Function represented by action is thought to be the most highly salient quality of these concepts. The most common iconic associations made by learners between signs and meanings, involve actions “done to” the referent (e.g. DRINK/CUP, CAR/DRIVE) or functions of the referent (e.g. BED/SLEEP).

This suggests that signs involving actions may be those most easily learned, particularly by deaf-blind students. The authors suggest beginning with these signs in order to teach sign-meaning associations, before going on to teach functional vocabulary that may not be so highly salient.

Comment

(1) No distinction is made in this paper between receptive and productive learning of signs. The present findings, and those quoted in support of the author's views, relate to receptive learning (i.e. comprehension and recall); the role of iconicity in productive learning is not clear (see discussion in RIS, I, 10, 2-3 and 9-10). It may be that iconic cues are more relevant to the understanding of signs, and that the physical structure of the sign becomes more important in production, where factors like symmetry, handshape and contact with the body seem to interact with iconicity to influence ease of learning. Some discussion of these findings would have been useful.

(2) The authors set out to investigate whether early vocabularies are highly iconic. However, they examine a teaching lexicon, rather than “real” vocabularies derived from sampling the first words, or signs, of young children. Teaching lexicons (the Makaton Vocabulary as well as Fristoe & Lloyd's) are based on a number of criteria, such as functionality, and are not purely developmentally based. In fact, a study by Orlansky & Bonvillian (1984) of the early vocabularies (c. 50 words) of young deaf children, found that only about 1/3rd of the signs

could be judged iconic. This suggests that, while iconicity undoubtedly plays a part in learning signs, it is only one of a number of factors. Signs which arise out of actions may indeed be salient for learners at an early stage of conceptual development; but we need more information about concept formation in young signers to determine the role of iconicity in production, and in perception of signs. It is interesting that Wilson's group of deaf-blind children, functioning at a very low level, found iconic signs no easier than abstract when they began to learn; and that functionality of the sign, and motivation to use it, were felt to be more important determiners of learning rate.

References

*** Fristoe, N. & Lloyd, L. (1980)**

Planning an initial expressive sign lexicon for persons with severe communication impairment
JSHD 45 (2) 170-180 (1980)

Nelson, K. (1974)

Concept, word and sentence interrelations in acquisition and development
Psychological Review 81 (4) 267-285 (1974)

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

The role of iconicity in early sign language acquisition
JSHD, 49 287-292 (1984)

Jackson, N. (1984)

The Cheyne Symbol System

B.J. Visual Impairment, II : 1 13-17 Spring 1984

This article describes the Cheyne symbols, a set of 112 tactile pictographic and more abstract symbols, designed to express the kinds of concepts, semantic relationships, and telegraphic syntax, typical of a 2 year old. The children for whom the system is designed are typically blind from birth, severely impaired in locomotion, and unable to control the musculature for speech. Some of the main problems caused by visual impairment are outlined .e.g. recognising things by touch involves serial, rather than simultaneous, perception of attributes. It is difficult to evaluate how effective the system might be in other settings because of a lack of information about the abilities and progress of the client group.

Jensema, C.K.

Report of communication method usage by teachers of deaf-blind children

Part I A.A.D. 124 (6) 720-725 (1979)

Part II A.A.D. 126 (4) 392-394 (1981)

Part III A.A.D. 126 (5) 489-491 (1981)

Part IV A.A.D. 126 (7) 798-801 (1981)

These four reports present some interesting findings relating to communication methods used by deaf-blind children and their teachers. Overall, the children preferred to use manual/gestural communication, rather than oral and written methods, and the tactile-kinaesthetic channel is the most important.

Mountain, M. (1984)

Signing with the visually and mentally handicapped non-communicating child

CST Bulletin No.386 p.12 June 1984

Presents some practical suggestions for working with children who are visually as well as mentally handicapped. Because of the severity of the handicap, only a few, highly relevant, signs will be taught, and these may be individualised. The student's own meaningful gestures should be accepted, and perhaps shaped where possible nearer to a standard sign. The physical act of signing is particularly important and the child's kinaesthetic awareness is crucial - this means that signs normally made without contact may need a point of reference on the child's own body. Highly structured teaching is recommended.

Orlansky, M.D. & Bonvillian, J.D. (1983)

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

JNSSLHA 11 (1) 72-87 (1983)

In the section on deaf-blind students, several American text books offering guidelines for the teaching of signs are reviewed.

Sininger, L.S. & Yarnall, G.D. (1981)

Teaching a mentally retarded deaf-blind adult to follow commands in his living environment
J. Vis. Imp. & Blindness, 75-17-19 (1981)

A self abusive, institutionalised deaf-blind man was systematically taught to respond to 6 signed commands. The initial treatment procedure involved continuous reinforcement, both social and edible. During the second stage, the edible reinforcement was faded. Three sessions were used to establish generalisation of the behaviour to different staff members. Post checks two months later indicated that the behaviour was maintained in the living environment.

Sternberg, L. & Owens, A. (1985)

Establishing pre-language signalling behaviour with profoundly mentally handicapped students preliminary investigation
J. Ment. Defic. Res. 29 81-93 (1985)

Describes a procedure to develop signalling behaviour in 3 students with mental and associated handicaps. This is based on the approach of Van Dijk for working with deaf-blind students through patterning movement. There are 3 phases, "resonance", where the student's behaviours are responded to though they were communicative, by the teacher joining in, and promoting initiation of movement. Then "co-active" movement, where the teacher's behaviour is separated in space, but not time, and the student learns to observe and imitate. Finally "deferred imitation" where the model is no longer available for the student to imitate. Natural gestures are said to arise out of the student's behaviour involving the self (e.g. washing hands); others (e.g. pushing away) and objects (e.g. throwing a ball).

All 3 students improved their target behaviours, though only one succeeded in all stages of the programme. In the discussion section, various design and operational problems which affected the results are considered.

Comment

It is useful to see the direct application to handicapped students of studies on normal pre-linguistic development, and this approach looks very interesting.

Reference

Van Dijk, J. (1965a)
The first steps of the deaf-blind child towards language

Van Dijk, J. (1965b)
Motor development in the education of deaf-blind children

In Proceedings of the Conference on the Deaf/Blind, Refnes, Denmark Boston Perkins School for the Blind

Wilson, A.R.S. (1983)

The use of manual communication with deaf-blind mentally handicapped children in J. Hogg & P. Mittler (Eds) *Advances in Mental Handicap Research* Vol.2, John Wiley & Sons Ltd. pp.139-171 (1983)

Report of a 3 phase programme to teach signs to 5 deaf-blind mentally handicapped children whose residual vision was adequate to perceive signs, average CA 7 years 1 month. Initial assessment was on a checklist of observable behaviours – motor development, perceptual abilities, living skills, socialisation, communication and language. None of the levels reached 2 years, and in 9/17 subtests, the levels were less than 1 year. Average receptive language was 4.6 months, expressive language 4.1 months, speech abilities 1.5 months. The children showed no formal communicative abilities, and had no motivation to communicate. They achieved no scores on sign imitation pretests.

The Programme

Phase I lasted 18 months and consisted of receptive training. It is said that all the children learnt to respond to a variety of signs. Staff used the signs, with speech, appropriately and consistently in the classroom, and opportunities for signed communication were maximised. At the conclusion of the programme, although some children could apparently make some of the signs, they did not use any signs spontaneously.

Phase II (6 months) was an expressive labelling programme. 50 signs were chosen by staff and caregivers, and classified into touch/non-touch (i.e. signs which involve touching a part of the body, or not; iconic/non-iconic/static or moving).

The teaching process was standardised, and a precise sequence followed, incorporating prompting, and shaping the child's hand if no response occurred. Each session lasted 15 minutes, twice daily. Responses were rated on a scale from 1 - 5 depending on the independence of the response.

The results showed that 18-33 signs were learned. Iconic signs were no easier than abstract signs, and there was no difference between the learning of static and moving signs. However, touch signs were more easily learned than non-touch. The most difficult signs to learn were those made with both hands, where the hand movements were similar but in opposite directions. Signs involving finger spelling, and signs made out of the child's line of vision, were difficult to learn. There was a marked "learning to learn" effect, with successive signs requiring fewer presentations. Of over-riding significance in learning were the motivational force of a sign (CAKE being more quickly learned than TABLE) and the familiarity factor. Signs, like TOILET, which were in constant use, were quickly learned.

Phase III (6 months) involved the teaching of 36 verb-noun combinations representing instructions. All the children learned to respond to these, but the amount of time varied greatly. It was felt that the selection of mostly iconic initial verb signs was helpful.

The children's overall gains on the developmental assessment were compared to a contrast group of 12 children who did not receive training. Gains, often well in excess of the 30 months elapsed time, were made especially in locomotion, fine motor skills, vision, tactile, daily living skills and social development. The visual gains are accounted for by the better use made by the children of their available sight. There were significant improvements also in cognition, communication and language, though not in speech.

Comment

- (1) The term "deaf-blind" in this context may be misleading as these children had enough visual acuity to distinguish signs. Mountain (1984) see page 20, this Issue, suggests that partially sighted children differ from blind children in communicative difficulties experienced.
- (2) The effects described are clearly of a total programme aimed at structuring, and giving meaning to, the environment, rather than specific to the use of signing (it would have been useful to know more about the environment of the contrast group of 12 children).
- (3) It is noteworthy that the children were functioning at very low developmental levels before the programme began. It is common to find in the literature on teaching strategies for signing the prescription that students should be functioning at sensori-motor Stage V-VI, or M.A. 1 ½ - 2 years before signs can effectively be taught, and it is usually recommended that students who function below this level should be trained in "pre-requisite" behaviours such as attending, turn taking, and so on. Wilson's data illustrates the fallacies of these kind of selection criteria. Firstly, it is likely that a student's potential abilities are under-rated on initial assessment, precisely because lack of access to appropriate communication will depress his functioning in all areas. Secondly, linking signing ability directly to sensori-motor Stage V/VI is highly questionable. The work of John Bonvillian with young deaf children suggests that cognitive abilities of around Stage III-IV, once an infant can recognise that an event which recurs over time is the same, may be all that is necessary to understand basic signs; and deaf babies are said to have produced their first signs from 6-8 months on. So we should be very wary of assessing the developmental level of a student and excluding on the basis of low scores.

Thirdly the need to train pre-requisite behaviours is also questionable. Schaeffer suggests that, since these behaviours are implicated in signed communication, it may be more economical to teach signs, and thus entrain the behaviours. Wilson's results support this hypothesis.