

# The Clinician's Turn: Speech Pathology

*"What factors and clinical impressions influence your speech and language intervention programs for mentally handicapped children? What programs have you found most helpful?"*

*This topic was suggested by K. McKusick from British Columbia.*

*In the October-November 1982, "Current Canadian Clinical Concepts" section of Hear Here, we were provided with a study of two communication systems (Bliss Symbol and P.I.C.) for a nonverbal population with physical and mental handicaps. In today's article we read of a sensorimotor integration program in use in Toronto and of a brief exposure to Amslan and Amer-Ind. used with a similar population in Saskatoon. Bridging all programs in use is the plea from Vancouver - regardless of program, the Speech Pathologists must serve the role as the communicator - with fellow team members, with the home and with the school.*

*All three contributors are or have been directly involved with mentally handicapped children.*

*Questions about specific issues should be addressed to the authors. Comments on this or previous topics, or suggestions for future topics should be sent to the co-ordinator:*

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*My first thought when I was approached to contribute on this theme was no, since I stopped being directly involved with the mentally handicapped population approximately eighteen months ago. On second thought, my twelve years of experience, partly in Yugoslavia and here in Canada, were "buzzing and complaining" that after all, I have something to say. Therefore, here are my second thoughts.*

*One of the most important roles for me as a Speech and Language Specialist is to be part of a professional team and to try to share with others the information I have. This is even more crucial when mentally handicapped children are involved. It means more specifically, assessing the child's strengths and weaknesses in terms of Speech and Language and in the*

*light of mental handicap per se, as well as additional complications, or handicaps, if you wish, that these children often have: i.e. partial or total hearing loss; visual handicap or blindness; emotional, social, and behavioural problems; cerebral palsy; cleft palate; various clinical syndromes of mental retardation; etc. It also very often means a modification of the initial Speech and Language impressions and set-up of priorities.*

*My second, but no less important role, is to communicate my impressions to the parents of these children. They often do not understand the problem and it is not very helpful to talk about the home language intervention program if the parents can't accept the child as he or she is. The negative*

results of that attitude are enormous and should be dealt with first. At this stage, some other members of the team may be able to counsel the parents, however, I have found that most parents are alarmed primarily with the child's inability to speak so they do relate better and are perhaps more receptive to us than to other professionals. Simultaneously, I communicate to the parents certain basic philosophical strategies in teaching language, taking into consideration their child, and strive, above all, to teach them to share with their child the joys of communication.

In the space that I have left I would like to mention the following about language programs. This is closely related to our present, most important role as Speech and Language Specialists which is to be a perceptive consultant to the home, school, and team members. In order to be effective, Speech and Language programs must, among many other considerations, stress as an absolute prerequisite, the social communicative nature of language and must include parents and other interested parties in the child's life in this process.

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Earlier, and on-going, intervention programs for the mildly to profoundly retarded child are often geared too high, and they do not follow a normal developmental sequence. Language programs tend to ignore the bases of communication and concentrate on teaching the child to talk or sign or use Bliss symbols at all costs. Even when they are successful in producing words or signs there is often a lack of generalization and continued, spontaneous development of articulation, vocabulary and syntax. The long-term results

may be less than satisfactory when compared with the levels reached by a particular student in other areas.

Sensori-motor integration programming for retarded children and young teenagers endeavours to accelerate the development and organization of the brain rather than teaching specific skills. If this is achieved, within the limits of the child's disability, the student is able to make more sense of the environment, and adaptive behaviours, including communication, are more easily learned.

The basis for this type of programming comes from several sources. Firstly, there is some agreement that Stage VI of Piaget's sensori-motor period is a pre-requisite for the development of formal communication. Secondly, early myelination of a system is considered to be an indication of the importance of that system in the preservation of life, which includes adaptation to the environment. Myelination occurs early in the vestibular, proprioceptive and tactile systems. Thirdly, a search of the literature shows that stimulation of the vestibular, proprioceptive and tactile systems appears to have the greatest effect on intellectual development. Fourthly, it is now thought that perception and learning of all kinds are not specific to specific parts of the brain, but include most, if not all, of the brain with mediation through the Brain Stem. And, fifthly, development generally proceeds in a fairly predictable manner, particular skills being the foundation for similar, more advanced skills. This progression includes the inhibition of early reflexes which hamper development when they remain operative past their appointed time.

Drawing these concepts and research results together it seemed logical to attempt to bring the retarded student up to the level of sensori-motor Stage VI, no matter what his chronological age, and to use stimulation of the vestibular, proprioceptive and tactile systems to achieve this. It was hypothesized

that a retarded infant requires more and more sustained stimulation of these systems to enable him to follow a normal developmental sequence; and that many of the gaps in this sequence, found in retarded children, are the result of inadequate stimulation.

This method of programming has been in use in a few classrooms in the Toronto Schools for the Retarded for the past 7 years. To date, unfortunately, it has not been possible to obtain funding for a controlled research study. All the test results must, therefore, be viewed with caution since they were done by the writer, who also developed the program, and the students tested were matched class-to-class rather than student-to-student. In all, some 90 students, ranging in age from 4 to 15 years, have been given pre- and post-program comprehension testing. It was decided to focus on levels of comprehension since this often delineates the levels of general learning and social skills. Testing to determine the level of sensori-motor integration was not done because of time constraints. The results showed, in all cases, that the mean gains of the experimental classes were substantially higher than those of the control classes. The means for three particular experimental classes, where the students ranged in age from 4 to 15 years, showed a gain of 6 months in comprehension in a school year, whereas the means for similar control classes were two months in a similar period. Some of the individual students have been followed over the past 4 years, and whether or not they have remained in sensori-motor integration classes they have not lost the gains they made. On the other hand, optimum levels are seldom reached in one school year.

During a survey of approximately 200 students, aged 14 to 21, it was found that primitive reflexes were still operating in some 50%, and that only 2 students were physically at the 6 year level. Of this student group about one

third had Down's syndrome which is the same proportion as is found in the total population of the Schools for the Retarded. In other words, Down's syndrome students on the whole have the same types of developmental gaps as are found in the general retarded population.

Since the Speech Pathologists in the Schools for the Retarded do no direct therapy the teacher in each class acted as a mediator. Fairly intensive in-service training of the teacher, continuing consultation with a therapist who understands the concepts underlying sensori-motor integration therapy, and co-operation from the school administration are all necessary for this type of programming. The latter is particularly relevant since the availability of space, whether it is the use of hallways or extra time in the gym, is a requirement.

In the program itself use is made of hammock nets, of scooter boards, rocking boards, large therapy balls, hanging balls, ramps, cardboard boxes, materials of differing textures. These can be used to produce stimulation of the vestibular, proprioceptive and tactile mechanisms; separation and co-ordination of body parts; extension and flexion against gravity; sequencing of body movements; development of protective reflexes - all the things normal children experience and learn during the first 15 to 18 months of life.

It is felt that the students who make the greatest immediate gains with this type of programming are the 5 to 9 year olds, but whether or not younger students, making smaller immediate gains, would make larger gains in the long-term is something only a longitudinal research study could show. A proper research program might also provide predictors for those students who would benefit most from such a program.

The students will remain a part of the mentally retarded population and will still require special

teaching, but improved comprehension generally means improved ability to learn and interact socially.

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*From: Patricia Smith  
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The John Dolan School is a school for moderately and severely retarded children ranging in age from three years to 21 years. Many of the children are multiply handicapped. The speech pathologist sees the 90 children enrolled in the school as well as 30 T.M.H.

children in three self-contained classrooms in the city.

### Assessment:

For children functioning below one year developmentally, the following assessment tools are used:

- 1) R.E.E.L. - Receptive-Expressive Emergent Language Scale (Bzoch). This is an interview tool. Additionally, the children are assessed on an informal basis using this scale as a guide. The classroom teacher and teacher aides are most helpful answering questions especially when parents are either unrealistic or uncooperative.
- 2) The Programmed Curriculum Development Guide is also an excellent tool for assessing low-level pre-language skills. It not only sets out assessment guidelines but also suggests activities for stimulating pre-language and pre-speech skills.
- 3) A check list has been compiled combining items from the R.E.E.L., Curriculum Guide Pre-School Language Scale and Tina Bang's book, Language and Learning Disorders for the Pre-Academic Child. This checklist provides concrete evidence of functioning as well as giving a sequence to be followed in therapy, especially now that schools are requesting I.E.P.'s.

For children who have acquired some language skills, those who are communicating orally, the following assessment tools are used:

- 1) Pre-School Language Scale - (Zimmerman, Steiner & Pond)
- 2) Token Test
- 3) Peabody Picture Vocabulary Test - (Dunn)
- 4) Test of Language Development - (Newcomer & Hammill)
- 5) Test of Early Language Development - (Hresko, Reid, Hammill)
- 6) Carrow Elicited Language Inventory - (Carrow)
- 7) Test of Auditory Comprehension of Language - (Carrow)
- 8) Language Sampling
- 9) Oral-Motor examination
- 10) Hearing assessment

The language sampling technique has proven to be the most effective particularly when assessing verbal autistic children as it gives a better statement of their use of language.

Although oral-motor examinations are attempted on all children, it is often difficult to determine whether the impairment stems from a cognitive based disorder or a neuro-motor impairment.

The hearing screening done at the John Dolan School, (with follow-up at the University Hospital, E.N.T. department) has shown interesting results. Of the 55 children tested between February, 1981 and June 1982, 27 children (49% of the total) were found to have significant hearing impairment.

#### Programs:

It would be nice to say that children with certain disorders or syndromes fit into one program while those with certain I.Q.'s fit into another. Unfortunately, I.Q.'s, age, type of disorder or other disabilities do not significantly affect what program is used.

Many of the children at John Dolan are non-verbal. Due to limited space only these children will be discussed.

Cognitive functioning varies within this group, but of those children who are able to attend and follow simple instructions the Amslan System of Communication had been used. However after recently (March/82) attending D. Madze Skelly's workshop on the American Indian Gesture Mode of Communication, the concept based system seemed better suited to our children. Following Dr. Skelly's advice the Amslan signs were ignored and the (Amer. Ind.) signals reinforced. The transition was made much easier than anticipated.

The non-verbal children who were taught the (Amer. Ind.) program ranged in age from three years to 19 years, with an I.Q. range from 21 to 64. The children were seen in small groups by the speech pathologist twice weekly. A teacher or teacher aide accompanied the children for each session so that the signals taught are reviewed and reinforced in the classroom on a daily basis. The staff is taught the signals at weekly inservices and the parents are given explanations of the signals that their child has mastered. After five months of instruction the following has been achieved:

- 15% use 60-70 signals
- 4% use 50-60 signals
- 7% use 20-30 signals
- 30% use 10-20 signals
- 44% use fewer than 10 but more than 2 signals.

It has been observed that only those children who are using fifty signals or more are combining them to form longer messages.

The involvement of staff and parents appears to be a predicting factor in learning (Amer. Ind.). Unless a commitment is made to review and use it on a daily basis and unless the majority of the people involved with the child use the signal system, the effectiveness is limited.

Documentation of carry-over is a difficult task as comments of the staff must be relied on but it has become evident to all that many of the children are using their signals around the school. It seems that those who have only two signals as well as those who have mastered over 50 signals (half of the children being taught) are using them spontaneously. Six children have improved their verbal skills when using the (Amer. Ind.) signals. Both increased vocalization and improved articulation has been observed.

Two non-verbal children whose receptive language skills are at or

above the four year level have continued using Amslan. These children are beginning to read and seem to find the structure of the language of Amslan necessary to encourage them in language growth. In addition, the Fokes Sentence Builder is used as a supplement to learning the structure of language while encouraging reading.

One non-verbal cerebral palsied

child whose language skills have been documented between eight and nine years is using the Phonic Ear Handivoice 110. Giving this child this machine has been like opening the flood gates of communication. After six months of weekly instruction she now uses all four levels proficiently, and being able to use the isolated phoneme level, is unrestricted in what she wants to say.

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