

# THE BRAIN-DAMAGED CHILD AND LEARNING PROBLEMS

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## **What are the Broad Principles Necessary for Learning and how does a Child Learn?**

For a child to learn there is a spontaneous process of integration and interpretation of all sensations, sensory, motor and proprioceptive, through all the experiences of living. The essentials of what has been learned are applied to and developed step by step in further experiences, resulting in the generally accepted stages of development in the child. For example, at the age of five years a child should be able to draw a square, and a diamond at the age of seven. These are learned tasks. As Kephart says, learning is not a mechanical addition of performances but a true development.

The potential and rate of learning, however, differs with each child. Some learn more quickly than others in all subjects or perhaps only in a few. Some learn more easily visually, others auditorally. Some have better memories, others better powers of concentration, observation, etc. The child with a high I.Q. learns more easily than the child with an average I.Q., but a factor of great importance is 'drive' and how the child makes use of his intelligence.

The slow learner takes longer than the average child to acquire the basic readiness skills which are a prerequisite to learning in the classroom. On entering school at the generally accepted age, the child is not ready for formal education and learning becomes a problem. If, however, special attention is given as early as possible to help develop 'readiness' the child may well be able, at a later date, to take his place in the class and learn with the other children.

For the retarded child the process of integration and interpretation is slower as are the stages of development, and the final level of attainment is lower in all aspects of learning. There is an overall limited ability to extract the essentials of what has been learned through experiences and to apply this to other experiences. The child's mental age is lower than his chronological age.

In the brain-damaged child, however, the I.Q. (as measured by the S.A. Individual Scale, for instance) may be well above average, and yet there may be slower stages of development and a lower level of attainment in some aspects of learning. The parts of the brain which are damaged do not

function adequately and so there may well be difficulties in the process of integration and interpretation. The I.Q. tests show a scatter of attainment. For example a nine-year-old child may fail an item at the four-year level and yet succeed in several items at the twelve-year level. The word 'may' is a must when discussing brain-damaged children because no two are ever alike. Some may have no learning problems, others may have one or two or many problems to a lesser or greater degree.

In all children learning problems can be the result of emotional factors or physical defects, such as a hearing loss or poor or faulty eyesight. In order to illustrate clearly some of the neurological learning problems of the brain-damaged child, we will exclude from this discussion the above factors and we will furthermore discuss the child with an average or above average I.Q.

### Assessment

The initial assessment of the brain-damaged child is undertaken by a team of workers—paediatrician, neurologist, ophthalmologist, orthopaedic surgeon, psychologist, speech therapist, occupational therapist, physiotherapist and social worker. Hearing tests are essential with all athetoids and any other children when there is a language or speech problem, and in this field, as in all others, the younger the child when tested the better. Many children, in the past, have been classified as aphasic when the real problem has been a hearing loss. This was before the finer audiometric tests were applied by our speech therapists. Guided by the report from the 'team' the teacher's assessment begins and continues in her daily contact with the child. At Forest Town School, assessment and treatment begin with babies of a few months and home training programmes are planned by the therapists concerned. At the age of  $2\frac{1}{2}$ -3 years the children are admitted to the Nursery Section and the assessment and training of the child 'as a whole' continues.

When working with Cerebral Palsied Children we know there is brain damage, but there are many children with no physical involvement at all who have minimal brain damage. They have the same learning problems as the Cerebral Palsied child. Several children of this type have been taught in our school. In this article, the term 'brain-damaged' is used as distinct from the term 'brain-injured' which is often used to imply that the child has, in addition, gross behaviour problems due to damage of the brain. This type of child is also handled at our school.

The assessment of the results of the I.Q. tests of the brain-damaged child is most important and of great interest. The psychologist uses several tests, both verbal and performance, as there can be considerable discrepancy between these spheres of ability. Looking at the result on only one test can be extremely misleading as can be seen from the following case. A child of four years had an exceptionally high score on the verbal scale. In the Nursery School and Kindergarten she was not tested for perception problems and her poor motor performance was thought to be the result of a severe hand involvement. In the Grades, the teacher suspected

learning problems but the child's charm and verbal ability were such that she talked her way out of difficulties. She always had something of interest, not connected with the problem, to discuss. She also missed a great deal of schooling because of operations. Eventually she was found to have space perception problems which have affected her work. Although still excellent at languages, on a non-verbal test, the Snijders-Oomen Test, she rates below average.

## Remedial Techniques

As a teacher in this field for over twelve years one has learned through trial and error methods in the classroom, studying literature, and by working with and gaining knowledge from members of the 'team'. The work is not only rewarding but interesting, instructive and a constant challenge.

The following cases are quoted to illustrate how inadequate development of certain basic readiness skills resulted in specific learning problems, and how, although the result in every case was an inability to learn to write, each child's lack of basic skills was different. This applies to all learning problems in brain-damaged children.

Also, failure to learn may be due to one, or a combination of factors.

Subject A, a child of six years old, with an above-average I.Q., was unable to write. There was no physical hand involvement. She learned to read easily. Visual and auditory perception was good and there appeared to be no other problems. She could copy simple drawings in plasticine but could not draw them correctly. She could draw straight or curved lines. She could see if her copy was not like the original and when working with plasticine would, with much trial and error, push the pieces into the correct positions. But when drawing or writing she did not know how to place the straight or curved lines in position. She wrote the letter K like this



This was ten years ago and there was no member of the staff who could help overcome the problem. Then the idea occurred to me to see if moving her arm into the positions required for the lines in a drawing might help. I made her say the words describing the movement and position of her arm, as well as following the movement with her eyes. For example she put her arm straight out and said 'straight out'. Then in attempting to draw a matchstick man she used this verbalization, associated with the position and movement, to draw arms straight out. It worked! We played at soldiers lying down, standing up with arms straight out, up, slanting and curved to the top, bottom etc. The children verbalized while carrying out the movements and interpreted, verbally, movements made by the other children. They gave orders to each other as to how to place their arms.

They followed their own and other childrens' arm movements with their eyes and 'felt' the position of the arms with their hands. Pressure was exerted against their hands as they moved their arms into position to emphasize the feeling of the movement. Matchstick, plasticine and gummed paper men were made and then drawn. So 'A' learnt to write by associating the position of the lines of a drawing with verbal directions, which were associated with arm positions, and then carrying out the associated movement.

This was the beginning of what was called 'Directional Training' and this procedure has been used as a basis for much of my remedial work in developing learning readiness skills. 'A' is now in High School and doing very well, but of special interest is the fact that she has discontinued mathematics. In most cases where children have space perception difficulties, written number work seems to become a problem sooner or later. Another child, who did not have nearly as high an I.Q. as 'A' is in Form IV and doing mathematics adequately. She had no space problems.

Subject 'B', a child with gross apraxia who could interpret drawings but could not carry out the motor movement, has learned to write through 'Directional Training'.

Subject 'C' could not copy a drawing either in plasticine or on paper. He could recognize pictures and drawings of squares, circles, etc., but could not analyse the contour lines of a drawing, for example a square, into meaningful parts. As a result fine discrimination was poor and so was reading. Directional Training not only helped 'C' to analyse drawings into lines straight out or curved to the top etc., so that he could write, but also enabled him to learn to read. Though slow to begin with, he is now, at the age of twelve years, an excellent reader.

Subject 'D' could analyse, draw the parts and place them correctly but could not see their spatial relationship. For example, she wrote a K like this



Subject 'E' could discriminate only if direction was excluded. To her, pictures of, for example, baskets with handles up or down or to the side were all the same and so were b's and d's, p's and g's, u's and n's, etc. Drawing, therefore, where there was direction was confused and she often worked from right to left. Reading was, as a result, very poor and remained a problem for years. She had an above-average intelligence and her auditory work was excellent.

Subject 'F' could copy any drawing but could not recall it. Verbalization, as used in Directional Training, was one of the methods which helped her to recall the 'picture'. For example she would say, 'b is a line straight down with a curve to the right at the bottom'.

Writing problems also include the inability to space letters and words, and to place letters correctly between lines. The disability here is not the failure to appreciate relationships within the whole, but the difficulty of relating one subject to another in space. The child, of course, must also have adequate eye-hand co-ordination in order to write.

The cases quoted above illustrate how, in order to help the child overcome the lack of a basic readiness skill, experiences were made meaningful by using the child's abilities to reinforce the one which was inadequate. For example, the experience of positioning her body and arms was made meaningful for Subject 'A' and was developed step by step in further experiences such as plasticine, gummed paper and drawing activities and finally writing.

Kephart, in his book, *The Slow Learner in the Classroom*, shows very clearly the complicated processes by which all sensations are integrated and interpreted so that the child develops the basic readiness skills. The teacher must understand these processes so that she can lead the child through the missing stages of development.

If the child has not achieved the 'readiness' on which learning in the classroom is based, the teacher must be able to find out why. The test used at our school, to find the 'why' of learning problems, was also developed through trial and error methods and is not standardized. It consists of a series of carefully graded activities in which the child's ability to recognize, analyse, synthesize, recall and follow instructions, visually and auditorally, are noted; as well as his approach to a task, his ability to concentrate and the length of the concentration span. In addition the test can be used as the basis of graded programmes of remedial work to develop basic readiness skills, from the Nursery School upwards.

Training in learning for the young child begins in the Nursery School, as well as training in socializing, forming of correct habits, language and motor development. Through observation, the teacher begins to assess the child's potential and problems and, through play, helps the child to experience all sensations meaningfully. The Kindergarten teacher continues to assess and help the child develop learning readiness.

This training continues in the Grades and it is then or later that new problems may become apparent. For example, the child in the Kindergarten copies drawings but in the Grades recall is necessary. Very often a child in the Grades may well develop a number concept and be able to write down simple sums, but later, when hundreds, tens and units are used, the child with space problems very often gets 'lost' in the positioning of figures on the page. The teachers in the standards must also be aware of the child's basic problems, even though these appear to have been overcome, as they may well appear in different and more advanced aspects of work at any stage.

There must be close co-operation between all members of staff who handle a child and the case conferences, held regularly at our school, are invaluable because the child is discussed as a 'whole' from all angles.

As with all children, the most important factor in teaching is for the

teacher to make contact with the child, gain his confidence and inculcate a desire and love of 'learning' by helping the child to achieve success. The importance of the teacher understanding 'how a child learns' does not apply only to those who handle the slow learner, brain-damaged or retarded children. There are many children in normal schools who would be saved feelings of failure, frustration, fear and from becoming problem children if helped to achieve success in their first years at school. Teaching, with a challenge, becomes really worth while!

### Opsomming

Daar is individuele verskille in die leerproses, selfs onder die sogenaamde normale kinders. Die verskille word egter duideliker as ons te doen het met die afwykende kind. Die verstandelik vertraagde kind sal stadiger vorder en nie so ver vorder as die normale kind nie. Die breinbeseerde sal weer op sekere gebiede vinniger en op ander gebiede stadiger vorder a.g.v. die letsel. Hulle mag probleme ten opsigte van die integrasieproses en interpretasie bied.

Om alle bykomende afwykings bv. gehoorverlies, uit te sluit, is spanwerk nodig. 'n Volledige diagnose moet van elke pasiënt gemaak word.

In die behandeling van 'n kind met persepsieprobleme kan gebruik gemaak word van taal en spraak om persepsie te verbeter bv. die verbalisasie van handbewegings in die uitvoering van 'n psigomotoriese aksie.

Die belang van basiese vaardighede wat die kind gereed maak vir die leerproses in die skool kan nie genoeg beklemtoon word nie. Ook moet die kind in staat wees om te herken, analiseer, sintetiseer, herroep en instruksies te volg (visueel en ouditief).

Die taak van die onderwyser wat werk met die breinbeseerde kind, is 'n uitdaging wat die moeite werd is.

### REFERENCE

- Kephart, Newell C. (1960): *The Slow Learner in the Classroom*. Columbus, Ohio: Charles E. Merrill Books, Inc.