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ABSTRACT

Described is the Aston Index, a pilot instrument designed for screening dyslexic-type language difficulties in young children. It is explained that the index consists of three forms to test children at three stages of development (such as those who have been in school about 6 months), that it represents an "integrated" approach, and that it includes well-known items from various sources. Discussed are specific components of the index which cover general underlying ability (such as copying geometrical designs); family history (such as laterality); and performance (such as visual sequential memory). (LS)

THE ASTON INDEX

A pilot instrument of dyslexic-type language difficulties

M. Thompson

Within the context of individual differences amongst children it is now considered by many educationists and researchers that a possibility exists of some children entering school at 5 years of age with an underlying psycho-motor organisation not favouring the acquisition of consistent ordered symbolic learning. This type of symbolic learning is essential for the easy acquisition of reading, spelling and fluent writing with their key constraints of consistently ordered symbols and sequences of spelling. It is well known that poor socio-economic factors, so-called illiterate homes, cultural differences, deprived pre-school experiences and emotional disturbances can be serious disadvantages for young school beginners. Teachers are in general aware of such events. The hypotheses presented here are derived from researches in neurology, neuropsychology, psychology and linguistics. From these sources it appears that in many cases of language learning difficulties there is a pattern of presenting symptoms which constitutes a "category".

This pattern may include:

- A non-resolution of dominance for hand, eye, ear language area in the brain.
- A familial incidence of left-handed or ambilateral members.
- A familial incidence of difficulties in reading, spelling, fluent writing.
- Sometimes a familial incidence of success in "spatial" occupations, e.g. civil or mechanical engineering, art, design, architecture, athletics, pattern making.
- Late development of speech and language patterning in the child.
- Inability to produce a consistent copy of directional symbolic material.
- Reversal, inversion of symbolic form and language material.
- Sometimes clumsiness and "accident proneness".
- Sometimes early success in perceptual-motor tasks, e.g. form boards, constructional toys, jigsaws, etc. (Newton 1972).

All of these symptoms need not be present, nor need they be present in an extreme degree. Sometimes there is a minimal difficulty presenting a "maturational lag" and postponing the ability to acquire symbolic, directional material until a later age - say 8, 9 or 10 years of age.

With these concepts in mind, it has been possible to construct a diagnostic instrument which may be used in the following manner:

1. To be administered after the child has been in school attendance for about 6 months and when the teacher has noticed difficulties in expected attainment discrepant with apparent "intelligence" and social competence.

2. To be administered at 7+ for puzzling cases of non-attainment. This might include the "slow-learning" child who can be equally affected by dyslexic-type confusions in symbolic material as well as lesser all round intellectual functioning.

3. A clinical instrument for use by consultant specialists in cases where such a resistiv learning pattern is present that further, deeper

This instrument, known as the Aston Index, consists of three parts which cover the above mentioned stages, designated Form I, Form II, and Form III. In general, Forms I and II are divided up into three areas: general underlying ability, child and family laterality and reading history, and performance items relating to reading. The Index represents an 'integrated approach' and includes well-known items from various sources; these have been kept as basic as possible to be practical within the time constraints of the teacher.

The following list of items is a reproduction from the Index:

FORM I

General Underlying Ability

1. Picture recognition
2. Vocabulary
3. Goodenough
4. Copying geometrical designs

Family History

1. Laterality
2. Birth history
3. Knowledge of left and right
4. Socio-cultural setting

Performance Items

1. Write or copy name 3 times
2. Visual sequential memory
3. Digits - forward and reverse
4. Sound blending
5. Sound discrimination

FORM II

General Underlying Ability

1. Goodenough
2. Vocabulary items
3. Copying geometrical designs

Family History

1. Laterality
2. Birth history
3. Knowledge of left and right
4. Socio-cultural setting

Performance Items

1. Reading Schonell
2. Spelling Schonell
3. Free writing
4. Graphomotor
5. Visual sequential memory
6. Auditory sequential memory
7. Sound blending
8. Sound discrimination

Form I is for use with children who have been in school about 6 months. The area of 'general underlying ability' is included to measure the child's ability to give verbal labels to the world around him; obviously before reading and writing can be attempted the ability to conceptualise objects is of paramount importance (early verbalisations consist mainly of nouns). Related to this is the vocabulary scale which looks at the ability to extract meaning from words and identifies the receptive understanding of the child. Reading and writing cannot progress in a satisfactory manner if the child derives no meaning from the words he is using. (Many children, however, although understanding verbal concepts and semantics, are still unable to acquire the automatic, sequential and arbitrary skills involved in written language. The Index assesses such potential in the performance section.) The Goodenough 'Draw-a-man' test is included to obtain some idea of the child's general ability. The results yielded by this apparently

simple drawing test have been found to correlate highly with scores obtained from other individual measures of intelligence. It is necessary to establish such "readiness" levels, as a child with slow learning potential (i.e. of low M.A.) may be at risk anyway in his ability to acquire the conceptual framework, as well as possible difficulties in perceptual skills.

Copying geometrical designs requires the child to draw the shapes of a circle, square, triangle and diamond. Performance on this task gives a measure of the perceptuo-motor development of the child. At 5 or 6 years old, most children should be able to reproduce a circle and a square, and at M.A. 7 years are able to copy adequately a triangle and a diamond. As well as the clinical and observational experience of the writers and many other educationists on thes indices of developmental stages, these items have their origin in well standardised and accepted tests such as the E.P.V.T.? Stanford-Binet Intelligence Scale, and Goodenough Test; thus providing the rationale behind the 'general underlying ability' concept.

The second area explores the family background and child's laterality. The type of specific reading difficulty under investigation is often a familial one, as well as being associated with underlying patterns of laterality and cerebral dominance. The child's laterality is therefore explored by a number of items investigating handedness, 'footedness', eyedness, etc. A pattern of inconsistent laterality (e.g. left eye/right hand) or uncertain and confused handedness could be indicative of difficulties in ordering and sequencing the uni-directional task of reading. The pattern offamily laterality is also noted because an indication of uncertain dominance and confused laterality often revealed in these cases, together with a history of poor spelling or reading, gives an insight into the familial and genetic nature of the disability (Critchley Orton, Newton, Naidoo, Zangwill and many others).

If possible, the birth history is also noted, as frequently an 'at-risk' birth may give rise to later difficulties in symbolic types of learning at school (Kawi & Pasamanick).

It is also well established that psychogenic factors may block the acquisition of symbolic learning; a question is included to cover these more socio-cultural influences.

The performance items forming the thid part of Form I are those which have been found to correlate with this type of reading difficulty. The visual sequential sub-tests and the auditory sequential (digits forward and reverse) sub-tests are included. These give an indication of the ability the child has to order sounds or symbols in an arbitrary sequence, which is of paramount importance in this directional task. The nautre of the tasks to be learnt (reading, spelling, writing) requires the perception, retention, and the reproduction of sounds and symbols in an order and sequence (Naidoo, Thomson, Goldberg). The visual sequential memory consists of symbols and pictures in sequence which the child has to put in the correct order after having a sequence shown to him by the tester. The digit span consists of the child repeating a series of digits in the same order, and in the second test, in the reverse order. Poor performance in these sequencing types of task would again be indicative of a specific directional and sequencing difficulty.

A sound-blending sub-test is included to measure the ability to make a meaningful word from its constituent sounds (e.g. c-a-t makes ? - again

often a particular difficulty) and also to give the teacher some idea of the efficacy of a phonic approach to reading. Relative superiority in either the visual or auditory subtest would of course have important remedial implications, e.g. a stress on the better skill to acquire some reading with "overlearning teaching to improve the weaker. Finally, a sound discrimination test is included to test simply the ability of the child to repeat words that are spoken to him, as a crude auditory acuity measure. Special attention is directed to initial and final sounds. Both these tests relate to the ability to distinguish phonemes, and to blend these together to make symbolic sense (Bannatyne, Shankweiler & Liberman).

Form II consists of the same items as Form I for the performance section, except that the Picture Recognition has been dropped from the general ability section and it is suggested that other general ability measures such as E.P.V.T. and Ravens Matrices are used. Because Form II is more of a diagnostic instrument rather than an "early warning system", some further items have been included in the performance section.

In order to measure the dependent variable the Schonell reading and spelling tests are included. Reading and spelling age are based upon graded words becoming progressively more difficult. The level of reading and spelling should of course be related to the child's ability as well as chronological age, to get a real measure of under- or over-achievement.

A sample of free writing is included, and this can be an important diagnostic factor. The number of reversals, bizarre spellings, pure phonetic spellings, general motor control, fluency of idea and expression, syntax, punctuation, etc., may all add up to an overall picture of the child's abilities, and particular attention should be directed to a discrepancy between the child's written performance and his language and intelligence levels as manifested orally. (Criteria for Free Writing items - Rabicnvitch, Critchley, Miles, Newton).

The final performance item is the graphomotor test in which the child copies a pattern with right hand and left hand, with both hands at once, and in different directions. This gives a general idea of fluency and motor control as well as relating to the laterality items - is the child fluent with both hands, can he cope with two directions at once easily, etc? Difficulties in directional motor fluency are highlighted. This test is derived from work on directional confusion in skilled tasks (Gerhardt). Form II then should give a wide view of the child's abilities and skills, in relation to the reading and writing task.

Form III does not include any specific test items, but gives examples of the types of tests which might be used if further diagnosis is necessary, and suggests referral to specialist agencies if any problem is highlighted.

The Index is intended as a first screening procedure. It has been devised to give teachers (and others concerned with the education of young children) a means of being alerted to those children who will be 'at risk' in our verbally biased educational system because of their predisposition to dyslexic-type language difficulties.

The use of the early warning system will:

- Give appropriate awareness to teachers at the the critical time.
- Ensure appropriate teaching and learning programmes.

- Minimise the anxiety and guilt in both child and mother.
- Enable optimum learning to take place in other spheres.
- Prevent children being regarded as "lesser" than they really are.
- Ensure healthy emotional and psychic growth.
- Fulfil a long-term objective of satisfactory and effective involvement in the educational system of the country. In extreme cases this can help in preventing later "alienation" problems, pre-delinquent behaviour, withdrawal, anti-social compensatory behaviour, involvement with drugs, etc.

In less extreme cases awareness and appropriate teaching will prevent personal and familial anxiety and misery. It could also lead to society's benefit in the effective deployment of each person's individual skills.

REFERENCES

BANNATYNE A.D. & QICHIARAJOTE P. (1969) Hemispheric Dominance, Handedness, Mirror-Imaging and Auditory Sequencing J. Learning Disabilities, 2, I.

BRIMER M.A. & DUNN L.M. (1962) English Picture Vocabulary Test 2 (N.F.E.R. Publishing Co. Ltd.)

CRITCHLEY M. (1968) The Dyslexic Child (W. Heinemann Medical Books).

GERHARDT R. (1959) Left Handedness and Laterality in Pilots, Medical Aspects of Flight Safety (Pergamon).

GOLDBERG H.K. & SCHIFFMAN G.B. (1972) Dyslexia: Problems of Reading Disabilities (Grune & Stratton, New York & London).

GOODENOUGH F.L. & HARRIS D.B. (1963) Goodenough-Harris Drawing Test (N.F.E.R. Publishing Co. Ltd.).

KAWI A.A. & PASAMANICK B. (1959) Prenatal and Paranatal Factors in the Development of Childhood Reading Disorders, Monogr. Soc. Res. Child Dev. 24, 4, 1-80.

MILES T.R. (1970) On Helping the Dyslexic Child (Educ. Methuen Ltd.).

NAIDOO S. (1972) Specific Dyslexia (Invlaid Children's Aid Association).

NEWTON M. (1970) A Neuropsychological Investigation into Dyslexia in Assessment and Teaching of Dyslexic Children (I.C.A.A.).

NEWTON M. (1973) Dyslexia: A Guide for Teachers and Parents (The University of Aston in Birmingham).

ORTON S.T. (ed.) "Word-Blindness" in School Children and other papers on Strephosymbolia in Specific Language Disability - Dyslexia (The Orton Society, Inc., Conn.), 1966.

RABINOVITCH? R. (1968) Reading Problems in Children: Definitions and Classifications in Keeney & Keeney (eds.) Dyslexia: Diagnosis and Treatment of Reading Disorders (C.V. Mosby Co.).

SCHONELL F.J. (1942, 1940) Reading and Spelling Tests (N.F.E.R.).

SHANKWEILER D. & LIBERMAN I.Y. (1972) Misreading: a Search for Causes, in Kavanagh J.F. & Mattingly I.G. (eds.) Language by Ear and by Eye: The relationship between speech and reading (M.I.T. Press).

TERMAN L.M. & MERRILL M.S. (1960) Stanford-Binet Intelligence Scale (N.F.E.R.).

THOMSON M. (1971) An Investigation into the Sequencing, Laterality and Some Other Correlates of Specific Reading Disability, M.Sc. Dissertation (Dept. of Applied Psychology, University of Aston).

ZANGWILL O.L. (1962) Dyslexia in Relation to Cerebral Dominance, in Money (ed.) Reading Disability: Progress and Research Needs in Dyslexia (Johns Hopkins).

Other Source Books on Background Material

BANNATYNE A. (1971) Language, Reading and Learning Disabilities (Charles C. Thomas, Springfield, Illinois).

FRANKLIN A.W. & NAIDOO S. (eds.) (1970) Assessment and Teaching of Dyslexic Children (I.C.A.A.).

JORDAN (1972) Dyslexia in the Classroom (C. Merrill Co.).

KEENEY A. & KEENEY V. (1968) (eds.) Dyslexia: Diagnosis and Treatment of Reading Disorders (C.V. Mosby & Co.).

KLASEN E. (1972) The Syndrome of Specific Dyslexia (Medical and Technical Publishing Co. Ltd., Lancaster).

MONEY J. (ed.) (1962) Reading Disability: Progress and Research Needs in Dyslexia (The John Hopkins Press, Baltimore).