

The Role of Speech - Language Pathologist in the Rehabilitation of Specific Reading Disability

K. S. Prema

Clinical Assistant
Department of Speech Pathology,
A.I.I.S.H., Mysore

Abstract

Linguistic deficiencies in Specific reading disability is increasingly investigated in the recent years. This paper discusses the role of a Speech - language pathologist in the global rehabilitation programme of the reading disabled children. The bases for involvement as a team member along with Special Educationists and Educational Psychologists in order to extend his/her professional expertise and service is justified.

Key Words

SLD : Specific Learning Disability
SLP : Speech-Language Pathologist
DD : Developmental Dyslexia
VIQ : Verbal Intelligence Quotient
PIQ : Performance Intelligence Quotient

The field of Learning disability has experienced a rapid growth in recent years as compared to any other area of special education. Parallel to this growth, the confusions and controversies over the terminologies and issues of definitions have also multiplied. The disorder of reading which is viewed by a Special educationist as "Specific learning disability" (SLD) is termed as "Developmental dyslexia" by a Speech-language pathologist (henceforth referred to as SLP).

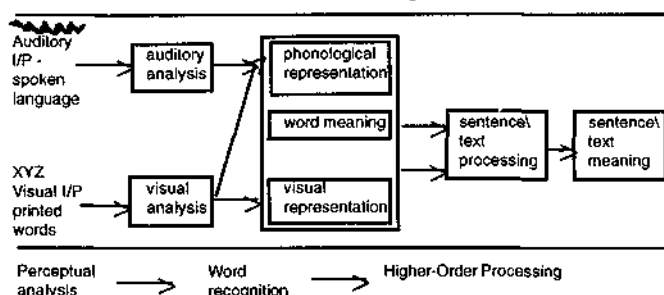
Specific learning disability is defined as a disorder in one or more of the basic psychological processes involved in understanding or in using language-spoken or written in which the disorder may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. The term does not include conditions primarily due to visual, hearing or motor handicaps, of mental retardation, emotional disturbance, environmental, cultural or economic disadvantage (National advisory committee on Handicapped children, U.S.A. 1967).

Developmental dyslexia is defined as a severe difficulty with the written form of language independent of intellectual, cultural and emotional causation. It is characterised by the individual's reading, writing and spelling attainments being well below the level expected based on intelligence and chronological age. The difficulty is a cognitive one affecting those language skills associated with the written form, particularly visual-to-verbal coding, short-term memory, order perception and sequencing (Thomson, 1990).

Beginning in 1950, radical changes have occurred in the concept of reading disability. Research into the possible origins of this problem suggests varied causes such as, hereditary (Hallgren, 1950; Hermann and Norrie, 1958; Visual perceptual problems (Bender, 1957; de Hirsch, 1957); Poor associational learning (Otto, 1961); Auditory discrimination problems (Myklebust and Johnson, 1962). Non-reading skill deficits such as poor verbal IQ (VIQ) than performance IQ (PIQ) was also speculated upon by Rabinovitch et.al., as early as 1954. Doehring (1968) found 31 non-reading skill deficits which comprised largely visual-verbal abilities.

These studies with multiple foci suggest that the process of reading involves a number of component skills. Despite the complexity of the reading mechanism, a deficiency in underlying verbal language skills is noted as a common feature in many studies on reading disability. This supposition may be further substantiated by Liberman's (1983) model of speech and reading.

Model of Reading and Oral Language Processing



Speech and reading are two facets of language. Liberman (1983) suggests that reading shares much in common with oral language. The model put forth by him views the process of normal reading as parallel to oral language development. In the last three decades, the focus of research has gradually shifted from pure visual and auditory processes to disorders that could interfere with recoding from written to spoken language. Researchers have attempted to explore the possible relationship between speaking, reading and writing to determine the possible common factors underlying these linguistic behaviours (Everhart, 1953; Sommers, 1961; Flynn and Byrne, 1970; Frith, 1981; Snowling, 1981; Joy Stackhouse, 1982; Liberman, 1983; Torgesen, 1985).

Hildreth as early as 1946 stated that "since oral language is acquired by the normal child before reading is begun, any aberration in speech development tends to affect progress in reading".

Everhart (1953) compared reading skills of normal children and those with defective articulation. He found that boys with normal articulation obtained higher reading scores.

Sommer et.al., (1961) in their explorative study on the effect of speech therapy on articulation and reading found significant improvement in reading comprehension scores. The authors suggest that the increase in verbal language experience might be the possible explanation.

Stackhouse (1982) in her investigation of reading and spelling performance in speech disordered children found that they have difficulty in carrying out grapheme-phoneme conversions as a result of which reading progress was slower than that of normal child.

In our own experience at the Therapy Clinic of All India Institute of Speech and Hearing, Mysore, three children

with articulatory deficiency who were enrolled for speech therapy were found to make no progress with speech therapy which was targeted at articulation correction. However, subsequent evaluation on an informal reading profile revealed that they were poor on reading skills. Later, when therapy was directed at improving reading skills, significant progress was found both in articulation and reading (Unpublished manuscript).

Apart from the studies focussed on children with articulatory problems and reading disorders, a good number of studies have been conducted on children who stutter and also experience problems in learning to read. (Blood and Seider 1981; Daly, 1981). Nippold and Schwarz (1990) suggest that methods of predicting reading problems in young stutters should be developed.

In addition to the research on speech production disorders, it has been reported that children with a history of speech and language impairment (Vellutino, 1979), deficits in vocabulary (Fry, Johnson and Muehl, 1970), deficiencies in the use of morphology or syntax (Fletcher, Satz and Scholes, 1981), and difficulties in the comprehension of syntactic structures (Byrne, 1981; Fletcher et.al., 1981) experience difficulties in learning to read.

The association between reading and language disorders could also be derived from Liberman's (1983) model. It is clear from the model for reading and oral language processing that reading and oral language share similar knowledge and processes. Hence, breakdown at one or more levels of linguistic processing could be responsible for many developmental reading disorders.

The earliest stage at which a deficit might occur is in the abstraction of linguistic features from the speech signal. Frith (1981), Liberman (1983), Torgesen (1985) state that children with reading disabilities often exhibit lack of phonological awareness and problems in representing verbal stimuli phonologically.

Wagner and Torgesen (1986a) propose that ability to blend phonemes plays a causal role in the acquisition of beginning reading skills and that the acquisition of reading skills plays a causal role in the development of phoneme segmentation skills. In 1987, an extensive review of research was undertaken by these authors. They concluded that it is important to know which aspects of phonological processing (eg: awareness, recoding in lexical access, recoding in working memory) are causally related to which aspects of reading (eg: word recognition, word analysis, sentences comprehension).

Mann and Ditunno (1989) from a longitudinal study conclude that phonological deficiencies play a causal role in reading acquisition and that poor readers tend to

be "phonologically delayed" rather than "Phonologically deviant".

Although most attention was paid to the phonological level of linguistic processing in reading disability, Wiig, Semel and Crouse (1973), Vogel (1979), Nelson and Warrington (1980), Smith, Mann and Shankweiler (1986) found deficiencies in morphology, vocabulary and comprehension and expression of syntax in such children.

Metalinguistic Skills and Reading

Metalinguistic awareness is the ability to think about and reflect upon the structural and functional features of language (Tunmer, Pratt and Harriman, 1984).

Numerous studies have demonstrated that reading disabled children lack explicit awareness of the sound segments in speech, perform poorly on phoneme and syllable segmentation tasks, show deficits in rhyming and alliteration (Bryant and Bradley, 1981; Liberman, Shankweiler, Fischer and Crater, 1971; Trieman and Baron, 1981).

Goswami (1990) investigated the special link between rhyming skill and the use of orthographic analogies. She found that the children who are better at rhyming also make more analogies in reading.

The Role of Speech and Language Pathologist

The task of literacy acquisition is the integration of a system for processing written words with the one which already exists for processing spoken words. From the studies reviewed above, it is obvious that a child will exploit the underlying language system when learning to read and that children with spoken language difficulties present written language problems.

Traditionally, it was not considered that reading and spelling development and difficulties would be included in the everyday work of the SLP. But, the shift of focus from deficits in auditory and visual skills which were believed to interfere with reading acquisition to the linguistic bases of reading disorders required the SLP to increasingly involve in the rehabilitation programme of the reading disabled children. SLP, therefore, plays an important role in the identification, assessment and remediation of reading disorders in collaboration with Special Educationist and Educational Psychologist.

Identification

Research suggests that SLP helps in early identification of children at risk for reading problems. Measures of phonological awareness, morphology, syntax and metalinguistic skills help in distinguishing good and poor readers. Because the SLP is familiar with these

types of tasks and underlying cognitive-linguistic abilities, he/she contributes to implementation of the screening programs. In addition, as SLP has the earliest and most extensive professional contact with young language disordered children, he/she can make adequate placement for potential reading development.

Assessment

Measures on the tests traditionally used for evaluation of phonological, syntactic and semantic processing serve as valuable guidelines for assessment of reading disorders when coupled with tests of reading achievement.

Snowling (1987) states that many of the conditions such as delayed speech and language development, persisting articulatory problems, word finding difficulties, immature syntax, poor segmentation and blending skills are found in children described as developmental dyslexic. Hence, it is essential that psycholinguistic tests appropriate for investigating such children with speech and language difficulties be developed. Such tests, however should provide a comprehensive evaluation of the oral/written language skills and also help to differentiate the child's strengths and weaknesses in different modalities.

Remediation

SLP helps in developing therapy procedures and materials to target both written and oral language. He/she also helps to develop complex phrases and sentences in reading disabled children which has proved to improve reading comprehension in poor readers (White, Pascarella and Pflaum, 1981). In addition, SLP collaborates with family and thus facilitates the remedial programmes.

Conclusion

The recent studies on Developmental dyslexics have focussed on the deficient linguistic skill thus encouraging an SLP to serve as one of the team-members in the global rehabilitation program of such children. However, the nature and extent of the role is determined by the clinical setting, the interest and initiative of the SLP. He/she should take an integrative view of language impairments and extend his/her professional expertise and service to oral as well as written language problems.

References

- Bender R (1957) In Doehring D.G., Patel P.G., Trites R.L., Riedorowicz C.A.M. (1981) "Reading Disabilities - The interaction of Reading, Language and Neuropsychological deficits", Academic Press,
- N. Y. Blood G.W. and Seider R (1981). In "Reading disorders in stuttering children", Nippold M.A. and Schwarz I.E., J. Fluency Dis, 15, 1990, (175-89)

Bryant P and Bradley S (1981), In Catts H.W. and Kamhi A.G. (1986) "The linguistic basis of reading disorders : Implications for the Speech and Language Pathologists" LSHSS, 17.

Byrne B. (1981), In Smith T.S. et.al. "Synthactic comprehension in young poor readers", Status Report on Speech Research, Haskins Lab, 1989.

Catts H.W. and Kamhi A.G. (1986) ("The linguistic basis of reading disorders : Implications for the Speech and Language Pathologists" LSHSS, 17, 1986.

Daly D.A. (1981), In "Reading disorders in stuttering children",

Nippold M.A. and Schwarz I.E., J. Fluency Dis, 15, 1990,(175-89)

Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M/ (1981) "Reading disabilities - The interaction of Reading, Language and Neuropsychological deficits", Academic press, N.Y.

de Hirsch (1957), In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Everhart R (1953), "The relationship between articulation and other developmental factors in children", JSHD, 18, (332-38).

Fletcher J.M., Satz P and Scholes P (1981), In Catts H.W. and Kamhi A.G., 1986.

Flynn P and Byrne M (1970), "Relationship between reading and selected auditory abilities of third grade children", JSHR, 13(731-40).

Frith U (1981), "Experimental approaches to developmental dyslexia - an introduction", Psychological research, 43, (97-109).

Fry M, Johnson C ad Muehl S (1970), In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Goswami U, (1990), "A special link between rhyming skill and the use of orthographic analogies by beginning readers" J. of Child Psychol. Psychiat., 31 (2), 301*311.

allgren B (1950). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Hermann K and Norrie E (1958). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Hildreth C (1946). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981)

Stackhouse J (1982), "An investigation of reading and spelling performance in speech disordered children", BJDC, 17,2,(53-60).

Liberman I.Y., (1983), Shankweiler D, Fischer F.W., Corter B (1971). In Catts H.W. and Kamhi A.G. (1986).

Liberman I.Y. (1983). In Catts H. W. and Kamhi A. G. (1986)

Mann V.A. and Ditunno P., (1989), "Phonological deficiencies: Effective predictors of future reading problems". Status Report on speech research, SR-97-98. Haskins Lab.

Myklebust H.R. and Johnson D.J. (1962). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Nelson K.E. and Warrington E.K. (1980). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Nippold M.A. and Schwarz I.E. (1990). "Reading Disorders in stuttering children". J. Fluency Dis. 15, 1990, (175-89).

Otto W. (1961) In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Rabinovitch R.D. (1954). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Smith ST., Mann V.A. and Shankweiler D., (1986), "Spoken sentence comprehension by good and poor readers - a study with the Token Test". Cortex, XXII (4).

Snowling M.J. (1981), "Phonemic deficits in developmental dyslexia", Psychological research, 43, (219-34).

Sommers R. et.al., (1961) "Effect of speech therapy and speech improvement upon articulation and reading", JSHD, 26, (27-38)

Thomson M.E. and Watkins E.J. (1990), "Dyslexia - a teaching handbook", Whurr publishers.

Torgeson J.K. (1985). In Catts H.W. and Kamhi A.G. (1986)

Trieman R and Baron J. (1981). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Tunmer W.E., et.al., (1984) In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Vellutino F.R. (1979). In Catts H.W. and Kamhi A.G. (1986)

Vogel S. A. (1979). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

Wagner R.K. and Torgesen J.K. (1987) "The nature of phonological processing and its causal role in the acquisition of reading skills". Psychological Bulletin, 1988.

Wiig E. et.al., (1973). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

White C. Pascarella E and Pflaum S (1981). In Doehring D.G., Patel P.G., Trites R.L., Fiedorowicz C.A.M. (1981).

National Advisory Committee on Handicapped Children, USA. In "Handbook of Special Education" (Ed) Kauffman J.M. and Hallahan D.P. 1981.