

# Speech Defects and Mental Retardation

ROBERT W. BLAKELEY, Ph.D.

COMMUNICATION of some form lies in integral association with our physical, emotional, social, educational, and vocational needs. To be without language is to be crippled; to be without language is to be dependent.

The child who develops with defective intellect a fortiori develops with defective language and speech. Though he may develop speech to a level of understandability and to a level of basic communication of his needs, his speech and language are still defective and do not reach the potential norm for man's intellect.

Unfortunately, many children of impaired intellect do not reach a communication level sufficient to make their basic needs known. It is estimated that approximately 3 percent of all children born today will be evaluated as mentally retarded by the time they reach their early teens (1). Figures from the 1960 census indicate that Oregon then had a total of 695,256 children under the age of 21. The normal curve approximation of IQ scores from Stanford-Binet testing shows 2.63 percent of the population as having IQ values below 70 (1). On this basis, approximately 18,000 Oregon children would fall below an IQ level of 70 as of 1960.

## Prevalence of Speech Defects

A survey of the mentally retarded by Spradlin (2) leads to the following generalizations about the number of those with speech defects: 57 to 72 percent of institutionalized mentally defective persons, 72 to 82 percent of severely re-

tarded persons, and 8 to 26 percent of children in special classes in public schools.

In a survey of the meager literature on speech defects of the mentally retarded, Mathews (3) reported studies which, broken down into arbitrary IQ ranges, suggest the following approximate percentages of speech defects:

IQ range	Percent
70-84, borderline retardation	18-31
55-69, mild retardation	40-50
40-54, moderate retardation	70-80
Below 40, severe and profound retardation	90-100

The positive correlation between speech and intelligence seems to indicate that each mental retardate is limited in speech potential in proportion to his intellectual limitations. The problem, of course, is not this simple. Unfortunately, our judgments are not based on careful, long-range research, as virtually none has been done.

The lack of professional enthusiasm for experimental and rehabilitation research with the mentally retarded has apparently been caused by the belief that their behavior results solely from innate organic deviations. This kind of thinking leaves little room for consideration of the influences which environment may have on such children from the standpoint of adding to their retardation. It also does not encourage attempts at modification of behavior by way of environmental study, modification, and control.

## Experimental Language Studies

Experimental studies of the speech and language of mentally retarded children were carried out in Lawrence, Kans., under the Parsons Project directed by Schiefelbusch (4). The children were ambulatory, institutionalized retardates. Each was designated as a "high" or "low" verbalizer by an arbitrary division in

---

*Dr. Blakeley is assistant professor of speech pathology, department of pediatrics, University of Oregon Medical School, crippled children's division, Portland. He prepared this article as a member of the Oregon Citizens' Committee for Mental Retardation Planning, 1964-65.*

scores achieved on the Parsons Language Sample. In one study of 96 moderately retarded children, low-level children elicited more binary questions (for example, questions calling for yes or no answers) from adults than did high-level children. There were significantly more verbal or conversational exchanges between adults and high-level children than between adults and low-level children. Adults used more responses, greater mean length of responses, and more words with high-level children than with low-level children, and they asked significantly more questions of low-level children. This suggests that adults respond differentially to the verbal behavior of high-verbal-level and low-verbal-level children, possibly presenting a different verbal environment to each group of children.

The Parsons Project group also reported a language study based on social and object reinforcement, using both partial and continuous reinforcement. Although a relatively stable law of psychology suggests that 50 percent reinforcement is empirically equal to 100 percent reinforcement, the mental retardates showed significantly greater frequency of correct vocal responses associated with continuous reinforcement. The combination of social (vocal) and object (candy) reinforcement proved to be more effective than either separate reinforcement or smiling, vocal-smiling reinforcements. The study included 60 children with IQ levels from 36 to 78. Variables to consider in such a study are sex and personality of the experimenter and sex of the subjects. Some writers suggest that social reinforcers used with institutionalized children may be prejudicial in that such children may be socially deprived.

Copeland, a speech pathologist working on the Parsons Project (4), experimented with delayed feedback of vocal responses to determine the effect of an echo of one's own vocalizations on vocal output. He used 88 children with a mean IQ score of 53.5 on the Wechsler Intelligence Scale for Children and mean chronological age of 13.5. Low-level children emitted more vocalizations than high-level children under both experimental (feedback in isolated room) and control (no feedback in isolated room) conditions. However, the feedback condition elicited a significantly greater amount of ver-

balizing from both groups than did the control condition. The study suggested that high-verbal-level children may be primarily under the control of social variables while the vocalization of low-verbal-level children may not be so.

### Rehabilitation Studies

Rehabilitation studies of the speech of mentally retarded children are as rare as experimental studies. Historically many authors have reflected the general attitude of speech pathologists toward speech training for these children. West, Kennedy, and Carr (5) suggested that speech therapy is "practically useless"; Stinchfield and Young (6) wrote "Hope (regarding speech) is still an illusion . . . under limitations of our present knowledge"; and Backus (7) indicated that "speech therapy (with the mentally retarded) is likely to be a waste of time." These authors were generally referring to children with IQ scores below 70. It is no wonder that continued research has not been encouraged and that speech habilitation programs for the mentally retarded are rare.

Sirkin and Lyons (8) administered speech and language training to 169 institutionalized children having mainly borderline or mild mental retardation. Approximately 50 percent of these children retained significant improvement over a 3-year period after an average therapy period of 5 months with 2 sessions per week. No controls were used.

In 1953 Schlanger (9) studied 62 mild or moderately retarded children who received speech training in conjunction with special classes. He reported significant improvement in articulation, mean sentence length, and percentage of complete sentences used. No controls were used in this study. Schneider and Vallon (10), using a very small number, reported in 1955 on the results of a 1-year speech training program in a school for retarded children. They concluded that ". . . there is definitely a place for speech therapy in educational or training programs for the moderately and severely retarded child."

That no control groups were used in any of these studies leaves the reader speculating about such variables as maturation and the influence of the total educational program on speech and language.

A study to compare speech and language progress in special achievement and nonspecial achievement classes is presently being planned by the Portland, Oreg., public schools. The results will be used by teachers in organizing speech and language programs for the mentally retarded.

### Speech Clinic Facilities

Based on the studies described by Mathews (3), an estimated 9,000 mental retardates in Oregon under 21 years of age need speech assistance. The following is a general description of Oregon's facilities for the mentally retarded.

Wilma Carson, pediatrician, conducted a survey of private facilities for the retarded child in Oregon in 1964 (unpublished report, University of Oregon Medical School). There were 37 facilities with a total enrollment of 812 children, mainly between the ages of 3½ and 18 years, and most had waiting lists. Three facilities each employed one person who met minimum standards for State certification as a speech correctionist. Most were staffed by lay people rather than educators, special educators, or even college graduates. The facilities included day schools, boarding schools, and custodial group care homes.

Public facilities include the Fairview Home, a public residential institution for the mentally retarded, located in Salem, Oreg.; public school programs; State hospitals; and schools for the deaf and blind. Fairview Home employs a speech clinician and has a present enrollment of approximately 2,500, including persons over 21 years of age, and a waiting list of 250.

At present, 160 to 180 speech specialists are working in Oregon. Most work in public school programs and have little or no contact with mentally retarded children except for occasional consultation. Speech specialists in college and university speech and hearing clinics and in community speech and hearing clinics are likely to see mentally retarded children regularly for speech and language and hearing evaluation.

During the 1961-62 school year, 105 mentally retarded children in special classes were certified by the Oregon State Department of Edu-

cation for speech therapy. Of this group, 29 were certified because of severe language dysfunction. In 1962-63, a total of 165 were certified for speech therapy because of mental retardation and 87 of this group because of severe language dysfunction. Including those with severe language dysfunction, 270 children were certified over the 2-year period, 1961-63, for speech therapy because of mental retardation.

Portland schools, the largest district in Oregon, offered training in speech, language, or both areas to the following numbers of mentally retarded children during the 1963-64 school year:

<i>Training program</i>	<i>Number trained</i>
Programs for the deaf.....	6
Language disorder class.....	2
Holiday Center (cerebral palsy).....	5
Special achievement classes.....	27
Regular speech correction (IQ below 80).....	76
Total.....	116

Inferences with regard to speech services offered mentally retarded children by other school districts in the State may be drawn from the State department of education certification figures for 1961-63. This group of 270 children included all children certified for speech assistance in the entire State. The State department of education will certify mentally retarded children for speech training if they are enrolled in a certifiable mental retardation program. These programs include children with a 55 to 75 IQ.

Speech specialists do not work with mentally retarded children mainly because virtually no positions are offered for speech treatment of such children. Many are, however, seen by speech pathologists for evaluation. This is an important casefinding function since many children are first recognized in the speech clinic as mental retardates. The defective speech provokes many parents to their first formal request for evaluation of their children.

In 1961 and 1962 a total of 403 children were referred to the speech clinic at crippled children's division, University of Oregon Medical School, because of poor speech development unassociated with any known congenital anomaly or with cerebral palsy. Of these children, 13

percent were found to be mentally retarded and 26 percent fell within the borderline retardation group. During the years 1961-63, 68 children were evaluated in the language disorders clinic at crippled children's division. Of this group 69 percent showed significant intellectual impairment, 20 percent were mentally retarded, and 49 percent were borderline retardates. These facts point up the importance of using speech clinic facilities in casefinding surveys of mentally retarded children.

### **Training the Mentally Retarded**

The advisability of offering professional speech and language training to mental retardates is usually decided on a prognosis basis after considering the facilities and staff available, the total number of children with speech disorders, and the estimated gain which the various children would be expected to make. With these criteria, speech service is rarely offered to the mentally retarded. Ironically, when research for the treatment of diseases such as leukemia, muscular dystrophy, or tuberculosis fails, experimenters usually decide that the method or direction was incorrect and proceed to modify their approach, constantly searching for the right combination or the key to a solution (personal communication, R. Copeland, 1964). This line of reasoning has not favored the mentally retarded child, at least insofar as speech and language training and education are concerned. Negative judgments, based on virtually no research methodology, have been made about speech acquisition for the retarded. The usual or standard methods have been tried and have been largely unsuccessful. The blame for failure has been placed on the brains of the retardates and experimental method which should direct experimenters down a hundred other avenues has not been followed.

When one considers that approximately 90 percent of mentally retarded children are in the mildly retarded group, 55 to 69 IQ, the task of teaching language does not appear so great as it might if 90 percent of these children were in lower categories. Perhaps, in the past, unrealistic or poorly defined goals have forced the discouragement about mental retardation which permeates the attitudes of most workers in the speech field. If goals were modified

from normal speech and language to relevant behavioral change, the steps along the way might not seem so great (personal communication, R. Copeland, 1964).

Adequate speech may make the difference between self-sufficiency and dependency, institutionalization, or vocational adjustment. Rather than asking about the best arguments for offering speech training and research to the mentally retarded, it might be more appropriate to ask for the arguments against offering such help.

I suggest the following recommendations as an approach to the mentally retarded child in Oregon. They are not intended to be all inclusive.

1. Initiate evaluation, diagnosis, and planning for each child by a multidiscipline professional group including the pediatrician, psychologist, psychiatrist, social worker, public health nurse, pedodontist, and speech pathologist. The neurologist, audiologist, geneticist, and others would be used as consultants. All specialists must take responsibility for searching out relevant associated findings.

Mentally retarded children are a high-risk group, more likely to have associated anomalies, disease sequelae, and familial tendencies for abnormalities. They require thorough workup and planning for realistic academic, vocational, and personal goals, which are understandable and acceptable to the parents and generally in line with the findings of the evaluators.

2. Provide genetic and birth control counseling to high-risk groups; for instance, those having a familial tendency for mental retardation, associated anomalies, birth defects, and other abnormalities.

3. Promote education of parents and the public about mental retardation. All related professions should take the responsibility for the inclusion of mental retardation in professional, service, social, PTA, and similar programs.

4. Develop a pilot study speech and language program using control subjects and integrated with an educational program, since true language comes with ideas and conceptualization.

Speech programs should strive for speech and language appropriate to each child's mental age rather than his chronological age. Social groups are an important part of language train-

ing. Vocalizations should be encouraged and rewarded. People who are with the child daily probably have the most influence on his speech and language development.

5. Do not hire minimally trained speech personnel for programs for the mentally retarded. If prestige positions are created, maximally trained speech pathologists will seek them.

6. Consider State-supported stipends for graduate students and professional workers (summer) in speech pathology and audiology to provide training and experience with the mentally retarded.

7. Consider training parents, teachers, and custodial personnel to be more responsive to the vocalizations of mentally retarded children and to use more verbalization with them.

8. Encourage doctoral candidates in speech pathology, audiology, psychology, and special education to do their research in the area of mental retardation.

#### REFERENCES

- (1) Terman, L., and Merrill, M.: *Measuring intelligence*. Houghton Mifflin Co., New York, 1937.
- (2) Spradlin, J. E.: *Language and communication of mental defectives*. Handbook of mental deficiency, edited by N. R. Ellis. McGraw-Hill, Inc., New York, 1963, ch. 17.
- (3) Mathews, J.: *Speech problems of the mentally retarded*. In *Handbook of speech pathology*, edited by L. Travis. Appleton-Century-Crofts, New York, 1957, ch. 17.
- (4) Schiefelbusch, R. L., et al.: *Language studies of mentally retarded children*. *Speech Hearing Dis 10* (Monograph supplement) : January 1963.
- (5) West, R., Kennedy, L., and Carr, A.: *The rehabilitation of speech*. Revised. Harper & Bros., New York, 1947.
- (6) Stinchfield, S., and Young, E. H.: *Children with delayed and defective speech*. Stanford University Press, Stanford, 1938.
- (7) Backus, O. L.: *Speech in education*. Longmans, Green and Co., Ltd., New York, 1943.
- (8) Sirkin, J., and Lyons, W. F.: *A Study of speech defects in mental deficiency*. *Amer J Ment Defic* 46: 74-80 (1941).
- (9) Schlanger, B. B.: *Speech therapy with mentally retarded children in special classes*. *Train Sch Bull* (Vineland) 50: 179-186 (1953).
- (10) Schneider, B., and Vallon, J.: *The results of a speech therapy program for mentally retarded children*. *Amer J Ment Defic* 49: 416-424 (1955).

### \$4.3 Million Grant to Sloan-Kettering Institute

The Sloan-Kettering Institute for Cancer Research in New York City is the recipient of a \$4.3 million Public Health Service grant administered by the National Cancer Institute. This award, made under a 5-year agreement and on the recommendation of the Surgeon General's National Advisory Cancer Council, will replace current Public Health Service grant and contract support of about 52 individual projects. The agreement is contingent upon Sloan-Kettering's continuing to receive more than half of its support from other sources, including private gifts and grants.

The single instrument method of support is intended to expedite research by giving the grantee institution increased flexibility in deploying funds as new leads in cancer research develop. It will also permit more comprehensive review of Sloan-Kettering programs by the National Advisory Cancer Council.

This cost sharing grant supports the entire Institute research program which includes clinical investigation, chemotherapy, biophysics, virology and immunology, chemistry, cytology, environmental carcinogenesis, and pathology. It excludes construction costs, purchase of capital equipment, and patient care costs.