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ABSTRACT

Ten author-contributed chapters focus on the education and rehabilitation of multiply handicapped deaf persons. Considered in readings are the following topics: programs for multiply handicapped deaf children in New York State, a definition of the population of multiply handicapped deaf students and a rationale for the provision of services, a proposed model for preparation of personnel, implementation of the model through the establishment of educational service programs for multiply handicapped deaf children, problems in the audiological assessment of deaf children with other disabilities, the education and rehabilitation of the deaf and mentally retarded individual, a modified manual communication system for deaf blind children, problems of persons who are both deaf and members of ethnic minorities, problems of the severely handicapped deaf--implications for educational programs, and the impact of the Vocational Rehabilitation Act of 1973 on deafness rehabilitation. A bibliography lists approximately 375 references on the multiply handicapped deaf. (DB)

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Education and Rehabilitation of Deaf Persons With Other Disabilities

**DEAFNESS
RESEARCH
& TRAINING
CENTER**

New York University School of Education

EDUCATION AND REHABILITATION OF
DEAF PERSONS WITH
OTHER DISABILITIES

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Editor

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May, 1974

Introduction

For those who believe that concern for deaf persons with additional disabilities is a new trend, the Bibliography at the end of this monograph will surprise them with articles dating before the turn of the Twentieth Century. Fay in 1879, 1887 and 1898. Fuller in 1879 and 1892. Jastrow in 1894. There are additional illustrations. But of the 374 references, more than half were published from 1960 to date. So while the interest is long-lived, its vigor has increased considerably in the last few years. The articles presented here reflect the current views of education and rehabilitation, bringing together a thoughtful discussion of the recent past with some exciting new ideas for the future.

Dr. Richard Hehir describes the programs for multiply handicapped deaf children in New York State. He offers a dazzling array of achievements and projected additions and improvements to existing programs. He concludes, however, with a sobering note: "There is a great need for the development of a teacher-preparation program which recognizes the competencies needed by teachers of deaf children who have additional learning problems. Such teacher-preparation programs do not exist" (page 5).

Following Chapter II, which endeavors to define the population, Dr. Naiman's paper proposes a model to solve the problem posed by Dr. Hehir. In Chapter IV, Dr. Lloyd expands upon the model, translating it to implementation within the educational setting.

The complexities of determining the hearing status of multiply involved children are exposed by Ms. Rabinowitz, who shares her extensive audiological experience with such children. The next three chapters deal with specific additional conditions. Mr. Bowe reviews the mentally retarded deaf condition as it appears in education and rehabilitation. A new approach to the deaf-blind child's use of manual communication is presented by Mr. Sternberg. Mr. Bowe returns to discuss the special problems associated with being a deaf member of an ethnic minority.

Chapter IX contains the reprint of an article by Dr. Larry Stewart on the educational implications of additional handicapping conditions. Through the courtesy of the AMERICAN ANNALS OF THE DEAF, we are able to continue to meet the persistent demand we have had for this excellent statement. Chapter X concludes the monograph with some reflections on the impact of the Vocational Rehabilitation Act of 1973 on deafness rehabilitation.

The Bibliography represents an effort to bring together as much as possible of the scattered writings on multiply disabled deaf children and adults through 1973. Completeness, however, is an ideal rarely, if ever, attained. We will welcome additions to it from our readers.

In preparing this introduction, I noted that our concern for deaf children and adults with additional disabilities is not new. The hallmark of our recent interest is its depth and breadth. The influence of a wide range of secondary conditions is being probed with

respect to all aspects of functioning. For the immediate future another feature of our regard for this problem is emerging---action. In education and rehabilitation we appear to be passing the stages of cataloguing, pondering, surveying, and moving to implement positive change. The outlines are already visible---new educational approaches, teacher-preparation programs, the Vocational Rehabilitation Act of 1973, etc.

I wish to express deepest appreciation to the contributors for their efforts. If errors appear in their papers, the fault lies with the editor. The credit for what is of value here belongs, most appropriately, to the individual authors. They share with me, I believe, the fervent hope that this monograph will be put rapidly out of date by the splendid progress which lies immediately ahead of us.

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May 1, 1974

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Programs for Multiply Handicapped Deaf Children in New York State

Richard G. Hehir, Ed.D., Chief
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New York State Education Department

Deaf children are educated in a number of settings in New York State. The State-operated and State-supported schools for the deaf serve 2,120 deaf children. In the Annual Report received in 1971-72, 857 multiply handicapped deaf children were reported by the nine special schools for the deaf. It must be remembered that there is no clear definition of what constitutes a multiply handicapped child. The schools report children who are deaf and have additional handicaps of a physical, mental or emotional nature as each school identifies them. In addition, the New York Institute for the Education of the Blind operates a regional center for deaf-blind children which serves children from several states as well as New York State.

Since the initiation of the movement to remove institutionalized children from that setting and place them in the community, the schools are being alerted to the need for providing educational services to additional deaf children who have the handicap of mental retardation.

With increased sophistication of parents, advances in medical diagnosis and treatment and community pressure to provide adequate educational services to handicapped children, the future promises to present many more hearing impaired and deaf children who have additional handicaps and who are in need of educational services. The State is moving towards the establishment of regional diagnostic and prescriptive centers wherein parents may have their children evaluated to determine the educational needs of their children and also wherein the direction will be provided so that these educational needs are described in terms of what services must be provided by the school system. Infant education---that is, education for children below the age of three---as well as early education for children between three and five are the programs destined for development in the future.

The State-operated and State-supported schools for the deaf report their populations contain deaf children who have a variety of additional learning problems. These learning problems include those associated with brain injury, mental retardation, emotional disturbance, motor impairment and inability to integrate cognitively and perceptually. The numbers of deaf children with additional learning problems increased dramatically since the time of the rubella epidemic of 1963-64. Since a number of these special schools serve the metropolitan New York City area, cultural deprivation associated with an urban population compound the problem.

In 1969-70 the New York Institute for the Education of the Blind was designated as a regional center for the education of handicapped children resulting from the rubella epidemic. This center provides services to approximately 70 children handicapped primarily by this epidemic.

Many of the children in the center have a number of handicaps including both visual and hearing loss as components of their handicapping condition.

The public schools are frequently approached to provide services to hearing handicapped children, many of whom have additional handicaps also. A survey of the New York City public school system will show that the public school for the deaf and the school for language and hearing impaired both include deaf children with additional handicaps who are also culturally deprived and from bilingual backgrounds. The Conservation of Hearing Classes in other urban centers such as Buffalo and Rochester present a similar picture although on a smaller scale. Since the number of deaf children is comparatively small in areas outside of the urban centers, Boards of Cooperative Educational Services are frequently called upon to provide education to deaf children who come from a number of component school districts. The general philosophy in the public sector is to integrate these deaf children into the mainstream of education whenever, and as soon as, possible. In many cases, however, the presence of additional handicaps in this hearing impaired population prevents such children from being integrated early and sometimes not at all.

There are a number of things which the Bureau for Physically Handicapped Children has attempted to do to help meet the problem of educating deaf children with additional handicaps in the various educational settings in which they are found. A Cooperative Research Endeavor in the Education of Deaf Children (CREED) was a federally funded project initiated by the Bureau in cooperation with the State-operated and State-supported schools for the deaf in New York State. This five-year study developed a model curriculum for use with deaf children having additional handicaps. It has successfully been adapted to meet the educational needs of other handicapped children, such as the mentally retarded. It is being used within the State-operated and State-supported schools for the deaf in other states as well as those schools for the deaf within New York State.

The Bureau has also sponsored, with the federal funds available, a number of Special Study Institutes to upgrade the competency of teachers providing instruction to multiply handicapped children. The Bureau sponsored an institute with the United Cerebral Palsy Association on early education for the multiply handicapped, another for teachers of preschool blind children with multiple handicaps co-sponsored with the Industrial Home for the Blind, and more recently a Special Study Institute for teachers in the special schools for the deaf and in Department of Mental Hygiene facilities concerned with the education of deaf-mentally retarded children in both settings. This latter institute was co-sponsored with the New York University Deafness Research & Training Center. This Institute was prompted by a recognition of the need for inter-agency cooperation between the Education Department-operated schools, such as the New York State School for the Deaf, and the Department of Mental Hygiene institutions, such as the Rome State School for the retarded. These two institutions have cooperated and are working towards establishing a relationship which will result in more effective education for deaf-mentally retarded children in both facilities. A similar undertaking is happening between the St. Mary's School for the Deaf, in Buffalo, and the West Seneca mental hygiene facility.

An experimental class for emotionally disturbed-deaf children was established in the Nassau BOCES by the Bureau through the use of federal funds. This class is taught by public school teachers with the assistance of specialists in handicapped education from the New York University Deafness Research & Training Center. Some of the children in this experimental class were not able to receive an adequate education in either the special schools for the deaf or in the public school.

The State-operated and State-supported schools for the deaf were encouraged to use federal funds to provide infant education to children below the age of three. Thus four schools for the deaf have infant programs which include parent education as an integral component. Deaf infants with additional problems have been identified and early intervention thus accomplished in their education. As a result many rubella children were served as infants and because of this training they were received into the regular school program.

Head Start programs are now mandated to insure that ten percent of their enrollment must have handicapped children. The State is working closely with Head Start grantees to insure that handicapped children, including multiply handicapped, are contained in the ten percent who must be served. Again, the emphasis in the Head Start program is early identification, infant education and parent education.

One of the greatest needs in the successful education of the multiply handicapped, including the deaf multiply handicapped, is adequately prepared teachers. The traditional teacher-preparation programs for the deaf do not always insure that teachers are prepared to work with deaf children having additional handicaps. The State is moving towards competency-based teacher certification. There is a great need for the development of a teacher-preparation program which recognizes the competencies needed by teachers of deaf children who have additional learning problems. Such teacher-preparation programs do not exist. It will be only when such programs are developed and teachers adequately trained are produced that the multiply handicapped deaf children will receive the adequate education they deserve. In the meantime, the development of curriculum, the inservice education of teachers and other steps must continue to improve.

Multiply Handicapped Deaf Students: Definition of the Population and Rationale for Service

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Whether diagnosis has improved or whether there has been an actual change in prevalence rates, the fact remains that the schools for deaf children now report many more of their students than ever before have a handicap in addition to their hearing impairments. The most impressive data bearing on this point comes from the Annual Survey of Hearing Impaired Children and Youth. In three studies, covering the academic years 1968-71, the Survey has shown consistently high rates of disabilities secondary to deafness.

As Table 1 illustrates, the rates for the three school years are fairly stable, despite the large differences in the number of students covered by the reports (from 21,130, to 34,795). About 400 of every 1,000 students have a handicap in addition to deafness. Most common are emotional and behavioral disorders (the drop in their rates from 124.3 in 1968-69 and 129.1 in 1969-70 to 95.9 per 1,000 in 1970-71 is due to the elimination of overlap between the two conditions in the last year). Mental retardation is the second most frequent additional handicap, varying from 70 to 80 per 1,000 students. It should also be pointed out that about 68 to 72 per 1,000 have more than one handicapping condition in addition to deafness.

Before further discussion of these data we need to know how they were gathered, so we can better understand what they mean. The Annual Survey obtains individual records on hearing impaired children in co-operating schools and programs each year. Every state, except New Mexico, is included in the 1970-71 report. Altogether, the most recently published study represents 41,109 students.

The information sought each year varies somewhat, but amongst the basic (i.e., annually requested) items is the one headed Additional Handicapping Conditions, with the instruction: "Check all educationally handicapping conditions." Following this instruction, the 1970-71 questionnaire provides check boxes for: "epilepsy, cleft lip, cleft palate, severe visual, mental retardation, cerebral palsy, perceptual, motor disorders, emotional or behavioral problems, heart disorders, and other". Not every school answers this item and some do not provide usable responses. The data are derived from about 85 percent of individual records.

Two factors must intrude, then, on your consideration of these figures. First they refer to conditions which an educator regards as causing difficulties for the child in school---as educationally handi-

Table 1

Additional Educationally Handicapping Conditions
Per Thousand Deaf Students by Years
and Type of Disability: 1968-71

Type of Handicap	School Years		
	1968-69 (N=21,130)	1969-70 (N=29,131)	1970-71 (N=34,795)
All Handicaps	419.8	419.6	392.6
Behavioral/Emotional Problems	124.3	129.1	95.9
Brain Damage	*	5.3	4.8
Cerebral Palsy	33.5	33.1	32.3
Cleft Lip/Palate	7.2	6.5	6.2
Epilepsy	*	5.7	6.5
Heart Disorders	8.8	13.9	21.6
Learning Disabilities	*	31.2	26.2
Mental Retardation	80.4	71.5	70.1
Orthopedic Disorders	*	6.6	7.2
Perceptual-Motor Disorders	55.3	54.5	54.2
Severe Visual	41.8	45.0	48.8
Other	68.3	17.2	18.9

* Included under "Other".

Source: Rawlings and Gentile, 1970; Rawlings, 1971; Rawlings, 1973.

capping. Secondly, the diagnoses underlying the decisions to check a box may or may not be made by an appropriate professional. What you have is a consensus by educators about their charges' mental and physical condition. These opinions may or may not be supported by psychological assessments, neurological examinations, etc. Nonetheless, despite the limitations on interpretation that these factors impose, it is apparent teachers believe many of their deaf pupils--- more than 4 in 10 among reporting schools---have a handicap in addition to hearing impairment.

In thinking about the relative extent of multiple handicaps among hearing impaired children, you probably have considered those whose secondary problems are undiagnosed or underestimated. Visual anomalies that might be mild for normal-hearing children can be severe for a visually dependent child. But surprisingly few schools and classes for hearing impaired children require ophthalmological examinations, being content with rough screening by paraprofessionals, if that much. Careful physical examinations are seldom demanded by the schools, yet heart defects in the child are the most common consequence of maternal rubella.

Another source of underestimation of multiply handicapped children in these data is absence from school. Because facilities to properly educate them are lacking, many administrators refuse to accept or to keep such children.

You may get an idea of the shortage of facilities by comparing the rates for the number of multiply handicapped deaf children by the rates for those in specialized programs. Table 2 is derived from data published in the April 1972 issue of the American Annals of the Deaf. In contrast to the 400 per 1,000 children believed to have a handicap secondary to deafness, only 148 per 1,000 are in specialized programs--- little more than one-third of those rated as having an educationally handicapping condition. The respondents to the Annual Survey and the Annals survey overlap greatly. Most conspicuous by their absence in the surveys are programs for emotionally disturbed children. Even for mentally retarded deaf children, we note that 67 percent of the estimated numbers are in special classes. The remainder are likely without special programs.

Children with severe emotional problems in addition to deafness are often expelled. What happens to them? Frequently, the answer is they stay home. Others are sent to custodial institutions which lack any instructional program relevant for them.

Let me quote from a case report by a staff member of the Deafness Center. I have modified it somewhat to make identification of any of the participants impossible. The facts, however, remain accurate.

The boy was deafened as a result of meningitis due to pneumococcus at the age of four months. He was the first of five children born to an upper-middle-class Caucasian couple. After his illness his behavior became

Table 2

Numbers and Rates per Thousand of Deaf Students Enrolled
In Programs for Multiply Handicapped Children,
by Type of Program: October, 1971

<u>Program</u>	<u>Numbers</u>	<u>Rate/1,000</u>
All programs	46,075	1,000.0
Nonspecialized	39,262	852.1
Aphasia	1,060	23.0
Deaf-Blindness	502	10.9
Mental Retardation	2,244	48.7
Other	3,007	65.3

Source: American Annals of the Deaf, 117, 1972, 237.

increasingly hyperactive with the frequent occurrence of seizures. At age four, the parents had the boy evaluated by a well-known clinic, where he was diagnosed as having "motor aphasia, hearing loss, hyperactivity, and compulsive disorder." Doubt was expressed that he could function in a regular school program. His intelligence was described as "borderline level." The boy then began a pilgrimage through a succession of day programs and private specialized schools (none for deafness, mostly for brain-damaged children.) School behavior regressed and he was tutored at home until he became overly abusive to a smaller sibling. His parents then sought his admission to a psychiatric institution which accepted him at age 10, noting that several schools for deaf children refused his admission because of his abnormal behavior. The patient was given a diagnosis of "hyperactive with the frustration of being deaf and mute." He was assigned to live in a unit where he was exposed to psychotic adults. As time passed he became more manageable and no evidence of psychosis or mental retardation was observed. The staff felt that his main problem was deafness and his most pressing need was appropriate education, so they recommended his admission to a residential school for deaf students. However, admission to the school was repeatedly denied on the grounds of his past record of abnormality. Now at the age of 16, the boy appears to be deadlocked in a mental institution.

There in human terms is an example of an atypical deaf child, one of the many who must come increasingly to our attention. Before we heap blame upon the last residential school which refused to take this youngster, we must recognize its complete lack of appropriate facilities for his education. The school is probably correct in assuming that he needs a transitional setting to prepare him for regular classes. Such a "halfway program" does not exist in the State where he resides.

Secondly, few teachers are especially prepared to handle the problems posed by emotionally disturbed deaf children. Not a single university presently offers the kind of education such teachers would need, although New York University hopes to have such a program available in Fall 1974.

Thirdly, educational budgets of residential schools do not now contain the sums which would cover the high cost of properly managing these children---though you may well agree that not spending enough for their education as children means even greater expenditures for their care as adults.

In discussing this problem with educators, we are told that the statistics alone do not portray the intensity of the problem. One suburban school district reported 9 deaf children suspended from schools because of severe emotional problems. Nine does not seem like a large number, until you note that the total enrollment in programs for deaf children in that district is 80: over 10 percent of the district's deaf children excluded from school. Not only is the proportion excluded distressingly high,

but also the consequences of being deprived of formal schooling are tragically large---far larger than would be the case for a child who can hear and can thus profit from incidental learning denied a deaf child. There is reason to believe that this one school district reflects somewhat the national picture. Dr. Michael Rodda (1972), for example, estimates a prevalence of severe emotional disturbance among deaf adults in Ohio to occur at a rate of about 10 percent. Teachers in a California school for deaf children judged 11.6 percent to be severely disturbed and 19.6 percent moderately disturbed, while Los Angeles County teachers using the same rating form judged 2.4 percent of their normal-hearing pupils severely disturbed and 7.3 percent moderately disturbed (Meadow and Schlesinger, 1971.)

The situation for deaf children with mental health problems parallels that for deaf adults. The entire United States has only five in-patient mental hospitals especially staffed to serve deaf adults: Rockland State Hospital (New York), St. Elizabeth's Hospital (Washington, D.C.), Michael Reese Hospital (Chicago), Langlely Porter Neuropsychiatric Institute (San Francisco), and the newly established Dixmont State Hospital (Pennsylvania). These few, scattered resources are hardly an adequate response to the needs of the adult deaf community. And there is not a single in-patient facility specifically designed for psychotic deaf children.

Let us turn from this dreary assessment of our meager resources to a search for signs of better things to come. Here in New York State we find evidence of movement toward improved conditions for multiply handicapped deaf children. I want to continue to deal principally with the emotionally disturbed deaf child, but I cannot help pointing to the recent publication Deafness and Mental Retardation (Stewart, 1972). The monograph reports on a special study institute jointly sponsored by the Bureau for Physically Handicapped Children, New York State Education Department, and the Department of Mental Retardation, State of New York Division of Mental Hygiene. It contains much valuable information and much that is encouraging. Probably most encouraging is the bringing together of the two State government agencies and, in turn, the attention they brought to bear on the problem. Awareness of need is an important first step in gaining positive social action.

New York State is also beginning to provide for emotionally disturbed deaf children. The Bureau for Physically Handicapped Children sponsored a research class in the Nassau County Board of Cooperative Educational Services (Naiman, Schein, and Stewart, 1973). What began as a single class for 6 children last year has expanded to two classes. The objective of the program is to return these children to their regular classrooms as soon as feasible. In the first year, 2 of the 6 children successfully rejoined the classes in which they formerly had been too disruptive to remain. Considering the severity of the problems---some of the children had been out of school for more than three years---these early results arouse optimism about what can be done. The chapter by Hehir (vide infra) summarizes the programs in New York State.

Table 3

Comparison of Emotional Disturbance as
Rated by Teachers of Deaf versus Hearing Students

<u>Hearing Status of Students</u>	<u>Rating of Emotional Disturbance by Degree (Percent)</u>	
	<u>Moderate</u>	<u>Severe</u>
Deaf	19.6	11.6
Normal	7.3	2.4

Source: Meadow and Schlesinger, 1971.

At New York University we have taken steps to develop a separate curriculum for teachers of multiply handicapped deaf children. You will learn more about the program in the next two chapters. Let me preface them by saying we are confident that these newly prepared teachers will find positions as rapidly as they can assume them. In turn, the classes which spring up should spur other universities to begin training in this area and encourage school systems to demand teachers who can meet the atypical deaf child's needs.

Another hope-inspiring vector on the problems of the multiply handicapped deaf child comes from the courts. Parents have started to confront the judiciary with their frustrations arising from their children being deprived of an education. Most of you are familiar with the Pennsylvania decision, in which the court ordered the Pennsylvania State Department of Education to provide "access to a free public program of education and training appropriate to the mentally retarded child's capacities as soon as possible but in no event later than September 1, 1972" (Pennsylvania Association for Retarded Children, 1971.)

An even broader class-action suit was won in the District of Columbia, though the details of the court's decision have not been handed down (Mills, 1971.) What the parents sought was an education for all children, regardless of any mental, behavioral, physical, or emotional handicaps or deficiencies.

New York State has a similar court case, involving Willowbrook (New York State Association for Retarded Children, 1972.) A successful outcome of the court's affirmative ruling is anticipated.

There are several more landmark cases on behalf of exceptional children. The overall impact should move us vigorously in the direction of increased and improved services for atypical deaf children. To maintain the momentum will require continuing parent-professional efforts.

Among the professional specialties, the roles of audiology and speech pathology in altering conditions for these children should be clear. The State speech and hearing associations can join parents and educators in demanding improved diagnosis and treatment for hearing impaired children. Audiologists can be alert for those inmates of institutions who are neither psychotic nor mentally retarded but in reality are only deaf. Too frequently misdiagnosed deaf persons are unjustly incarcerated. The speech pathologist, too, has much to offer in alleviating the educational burdens imposed by multiple handicaps. The highly developed techniques available to the speech pathologist can be valuable to these deaf children, and the speech pathologist can provide a useful orientation to the teacher who is unaccustomed to dealing with deafness compounded by epilepsy, emotional disturbance, etc.

Summary

The prevalence of additional disabilities among deaf students is alarmingly high. Educators indicate that 40 percent of deaf school-children have another educationally handicapping condition, e.g., emotional disorder, brain damage, mental retardation. About 7 percent have more than one handicap in addition to deafness. These rates apply only to deaf children in school and do not account for those too disabled to be in a classroom.

Special facilities presently available can accommodate only one-third of the estimated number of multiply handicapped deaf students. Especially lacking are classes for those who are emotionally disturbed. ---a large part of the total group.

Vigorous efforts are underway in New York State to develop programs to meet the urgent needs of these atypical deaf children. New York University plans to assist by preparing teachers specifically trained to work with these children and by consulting with schools which are opening classes for them. Taken together with the recent court decisions supporting parents' demands for education of their handicapped children, these activities give reason to be hopeful about the future.

The cooperation of parents and professionals---educators, audiologists, speech pathologists---will be necessary, however, to achieve the goal of adequate educational facilities for all atypical deaf children.

Regarding References to Court Cases

The cases cited in the preceding are reviewed in Mental retardation and the law: a report on status of current court cases by Paul Friedman for the Department of Health, Education and Welfare, Washington, D.C., June 9, 1972. See also Alan Ableson's A continuing summary of pending and completed litigation regarding the education of handicapped children, Council for Exceptional Children, Arlington, Va., October 10, 1972.

A Proposed Model for Preparation of Personnel

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You have read about the scope of the problem of multiply handicapped children---about the large numbers of children involved and about the kinds of needs they present. Now I would like to discuss some of the things being done to meet the needs and other constructive steps that could be taken. A crucial question to be considered is how to prepare personnel---teachers, audiologists, speech pathologists---with the competencies needed to work with multiply handicapped deaf children.

More and more communities are recognizing the right of every child to an education. And more and more administrators are recognizing the need to make provision for the large numbers of multiply handicapped deaf children. In New York State this year, the New York State Association of Educators of the Deaf devoted its entire annual conference to "The Atypical Deaf Child". And last year Dr. Richard G. Hehir and Dr. Beatrice Jacoby, representing the Bureau for Physically Handicapped Children, New York State Education Department, joined with the Department of Mental Hygiene and the New York University Deafness Research & Training Center to sponsor a Special Study Institute on Deafness and Mental Retardation.

Conferences such as these have increased the realization that educational provision must be made for these children and have increased the drive and impetus to establish suitable programs. But little can be done without specialized personnel who have the competencies required for working with multiply handicapped children. The critical need now is for personnel who are prepared to work with these children. The availability of a large number of such personnel has become a necessity. Only then can special classes be established. Only then can suitable education be provided.

Yet at the present time colleges and universities are not preparing personnel to teach these children. Important questions to ask now are: What can a university do in response to this emergency need to prepare quickly personnel who have the competencies to work with multiply handicapped deaf children? What are expedient and feasible ways to meet this need for specialized personnel?

The following is a model for a program that could be offered by a college or university in response to this emergency need for personnel prepared to work with deaf children who also have various other educationally handicapping conditions. This model is to prepare teachers of emotionally disturbed deaf children. But the same model could be adapted to prepare personnel for deaf children who have other handicaps. In the proposed model, preparation time is saved by selecting as trainees teachers who are already certified and experienced as teachers of deaf children. These teachers are then involved in a six-week intensive summer program to provide them with the additional competencies needed for teaching deaf children who are also emotionally disturbed, mentally retarded or with other learning disabilities. The rationale for intensive short-term training is based on the need for immediate placement for children who presently are denied admission to any program and for

children whose maladaptive behavior and learning problems are so severe that, in the perception of all the personnel involved, they should not remain in regular classes.

The new specialized teachers will also be prepared to serve as resource teachers to assist regular classroom teachers gradually to accept and manage these children in their classrooms as the children are ready. They will also help regular classroom teachers manage in their own classrooms children with less severe maladaptive behavior and learning disabilities. The immediate goal of the program, however, is to prepare teachers competent to manage the critically needed new classes for children who manifest learning problems and behavior patterns too maladaptive to benefit from or even be accepted into any existing programs.

In considering an approach to the education of emotionally disturbed deaf children, the objective is to prepare these children to return to regular classrooms. The teachers' goals are to help the children change unacceptable behaviors and develop acceptable behaviors so that they can function in existing programs. Hence criteria for success with the children are based on behavioral changes which promote return to the regular classroom rather than on gains in speech, lipreading, or academic subjects, although there may also be progress in these.

In planning the program, the assumption is made that emotionally disturbed deaf children, in general, will respond favorably to principles and techniques which have been effective with emotionally disturbed children who can hear. Careful consideration will be given to modification of procedures and differences in emphases, such as attention to communication modes as well as process. But if it is not necessary to do more than adapt procedures of known value with hearing children, then much time can be saved in setting up programs for emotionally disturbed deaf children.

The six-week institute would be planned to provide the experiences that would enable the trainees to develop the special competencies needed to teach emotionally disturbed deaf children. What are some of these competencies?

Experts from both the field of education of emotionally disturbed children and the field of education of deaf children have identified the following as competencies needed by the specialized teacher.

An essential competency is ability to communicate effectively with emotionally disturbed deaf children. This means establishing and building a mode of communication by using all methods including pantomime and gesture. It also includes skills in meeting special problems of amplification for hyperactive children.

An important competency is ability to apply behavioral principles to the management of emotionally disturbed children in a classroom. The specialized teacher needs skill in setting behavioral goals for individual children and then in planning a sequence of activities and systematically applied consequences. These would be designed to shape desired behavior and to ensure that the children regularly experience success at school. Most emotionally disturbed deaf children have a long history of failure in school, and it is important to reverse this pattern.

Another important competency is skill in managing a class and handling difficult behavioral problems. Specific skills include a working knowledge of techniques for relieving tension in classroom situations and ability to establish limits of social control.

Other needed competencies involve knowledge of special curriculum materials and remediation procedures. Also important is an understanding of classroom ecology---arranging of rooms for better communication and emotional atmosphere.

What would the proposed six-week summer institute to prepare teachers of emotionally disturbed deaf children look like?

One, the trainees would be fifteen certified and experienced teachers of deaf children. They would receive six hours of graduate school credit for participation.

Two, classes of emotionally disturbed deaf children would be available in a nearby school to serve as a practicum facility for the teacher preparation program. Before the institute, these classes will have been established and developed by the local school in cooperation with the program staff. A large amount of supervised practicum experience in these classes would be coordinated with course content in order to give trainees an opportunity to develop skills in actually working with emotionally disturbed deaf children.

Three, a multidisciplinary approach would be carried out by a faculty team representing education and the behavioral sciences. In the morning teacher-trainees would have supervised observation, participation, and practice teaching in the demonstration-practicum classes of emotionally disturbed deaf children. The major course sequence would be presented in the afternoon. Instructional approaches would include lectures and discussions with audiologists, speech pathologists, psychologists, and psychiatrists. There would be special feedback and planning sessions using a portable videotape machine, and integration seminars with staff and consultants to share, clarify, and analyze course experiences, observations, and practicum work with children.

This, then, is the general outline of a proposed plan. As indicated before, this model for preparing teachers of emotionally disturbed deaf children could be adapted to prepare teachers to work with deaf children who have other handicaps. Also, it could be a step toward the long-range goal of a full degree program to prepare teachers for working with other types of multiply-handicapped deaf children. Meanwhile, necessary practicum facilities will be established and curriculum and materials will be developed and field tested. And, most important, a group of teachers will be prepared to enter the field now to help meet the emergency needs of multiply-handicapped deaf children.

Establishment of Educational Service Programs
for Multiply Handicapped Deaf Children

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A number of years ago, a psychiatrist whose name I cannot recall, made a statement to the effect that diagnosis of conditions is useful only insofar as a program exists or can be established to meet the needs of a client. There can be absolutely no justification for the finest diagnostic facility and services in the world if there are no remedial services or programs to receive the diagnosed.

One of the first steps for meeting the service needs is a cadre of professionals prepared for and equipped to provide appropriate services. This is not a simple task, since, when breaking new ground, there are so many unknowns confronting us. It is hardly likely, too, as you have read, that educational programs or personnel preparation can be accomplished separately. Thus, the reliance, at least in the earlier stages, on field experiences in personnel preparation (Naiman, *vide ante*).

Historically, our record in the various areas of special educational programs and services for special need groups is not bad. With establishment of the fact that a particular condition was in fact educationally treatable, programs and services tended to result. A particularly good example of this is in the field of speech therapy where service to children in the public school setting has become the rule rather than the exception. We are seeing more and more attention being given to children evidencing problems which may be lumped under the heading of learning disabilities. Educational programs for trainable level children are becoming relatively commonplace in the public schools and it has not been too long since such children were excluded from public schools in New York State because of the condition.

In general, the trend toward services for children with special needs is healthy, although certain facets may be questionable. For one example, the requirement that all children in residential schools for deaf children must not be allowed to stay at the schools on weekends sounds reasonable. The intent, I am sure, is noble: Force, in a sense, the deaf child and his family to spend more time together and better, more healthy interaction will occur. But what about children who must return to homes where they really may not be wanted? What happens with children who have no homes to go to on weekends? At the Deafness Research & Training Center we know

what happened in some cases. It is a fact that several children were forced to spend their weekends in a children's shelter (in effect, in a prison).

Another trend today, of course, is to provide educational services for children at the local level (see Hehir, *vide infra*). Recent legislation which mandates such services locally reinforces the trend and is an expression of the philosophy that not only must services be provided, but that all children regardless of disability have the right to service. As a result, we do have classes for children who in the past may have been excluded from school programs because they could not fit into existing school programs. The BOCES approach is attempting to provide those programs which are not feasible for individual school districts, and for a variety of disabilities is providing suitable services which could not otherwise be provided.

However, we are talking about multiply handicapped deaf children and there has to be a real question as to whether all communities can meet the needs of this very special population. For example, children who are deaf and mentally retarded; children who are deaf and emotionally disturbed; children who are deaf and have severe visual problems; children who are deaf and have cerebral palsy; children who are deaf and who have perceptual problems which would be classified as learning disabilities; children who are deaf and have several other disabilities may not be able to be provided for in local programs if for no other reason than there are not sufficient numbers of an age with similar multiple disabilities to make educational service programs which can meet their needs feasible.

Thus, very often, we are still faced with the problem of meeting the multiply handicapped children's needs. That special programs can be established may be illustrated by the fact that several programs in New York State have either been started or are formally planned. The New York State School for the Deaf in Rome has a program for mentally retarded deaf children. It is a program especially designed for these children. The Nassau County BOCES has a pilot program for emotionally disturbed deaf children and it is demonstrating that these children's needs can be successfully met. Junior High School 47 in New York City has recently embarked on a new program designed to serve emotionally disturbed deaf children and also provides a special program for mentally retarded deaf children. And let us not overlook the program for deaf-blind children being conducted by the New York Institute for the Education of the Blind as well as the National Center for Deaf-Blind Youths and Adults. These are just the beginnings, but if we have learned one thing already, it is that when programs are developed or are developing, we suddenly discover there are more children needing special programs than we had been planning for.

There is one common basic feature that should be pointed out. It is that each of the programs just mentioned serves a relatively large population. The New York State School for the Deaf is a residential school and, as such, serves a large deaf population. Junior High School 47 and the Nassau BOCES are in huge population areas and can serve children on a day basis, which they do. Therefore, it does seem that highly

specialized educational service programs will have to be considered in terms of the population availability. We can have special programs for multiply handicapped deaf children on a day basis if the programs are in urban areas such as New York City or, possibly, Buffalo in this state. Children who need highly specialized placement who are not within commuting distance, on the other hand, must be considered for residential placement, contrary to the trend towards local, day educational programs services and despite the mandate for localization of services.

Obviously, centralized, residential facilities for special groups of children is not in line with the mandate for educational services for all children on a local basis. However, because we are most interested in providing suitable services for all children, we must accept the necessity for residential placement of multiply handicapped deaf children in schools such as the New York State School for the Deaf.

As you have already read, there are large, disproportionate numbers of multiply handicapped children in the deaf child population. Unfortunately, we probably will not find all of the children in the major population centers and it is not very reasonable to expect small local programs to provide all the special components for suitable educational services. The alternative, then, and, I think, not in opposition to the spirit of mandated local services is that we must work with existing facilities which have traditionally not been equipped to handle multiply handicapped deaf children. Again, the New York State School for the Deaf is showing that it can be done and done well. I frankly suspect that other schools are providing special programs although they may not have reported them as yet. The St. Joseph's School for the Deaf in New York City, is an example of this. They have been confronted with special problems and are attempting to deal with them.

Our responsibility at the college and university level, is to find the ways in which we can assist. We will work with individual schools, individual teachers, and we will work towards developing programs within our institutions which will provide opportunity for the development of professionals who are equipped to work with the special problems of multiply handicapped deaf children. As I see it, it is a total team approach---State-School Clinical-University approach---which must exist if appropriate educational services are to become a reality for all multiply handicapped deaf children.

Without State assistance there could be no comprehensive network of services for any exceptional children, virtually. The State has the primary responsibility to provide for the education of all children. Where feasible, the State has delegated the responsibility to the local level. Where it has not been feasible, other arrangements have been made, in our case, a number of private, state subsidized programs. With the awakening to the fact that the deaf child population is not one that simply cannot hear, that increasingly we find conditions of multiple disabilities which require special attention, the State may have to assume the leadership (and already has begun to do so) for seeing to the needs of multiply handicapped deaf children on other than a strictly local responsibility basis (Hehir, vide infra).

With leadership from the State, the private schools whose programs are subsidized by the State will, I am certain, respond by attempting to set up programs designed to meet the needs of the children coming to them. Classes for deaf children have always been small in terms of teacher-pupil ratios, but only in numbers, not in complexity of teaching-learning relations. The schools will have to design programs, environments, determine realistic teacher-pupil ratios, and attend to a number of other problems which will be posed by the establishment of special programs. There is no question in my mind but that they can and will do so, as evidenced, once again by the examples cited previously.

The clinical team members, which must include the audiologist and speech pathologist, must work very closely with the schools. Careful, reasoned, intelligent evaluation of each child is crucial. The school must have as complete a description as is possible through clinical procedures. Not only the clinical description, however, but interpretation of clinical findings in terms of prescriptive educational needs must be provided. Too many psychological reports, for example, may report the results while making no recommendations for educational services. Audiological reports are useful when therapeutic recommendations and follow-up evaluations and further recommendations are integral to the evaluation report process. But, the only way to achieve a coordinated, meaningful relationship is through cooperative efforts and good channels of communication.

The university has an important role, also. We are often accused of sitting in our ivory towers doing things our way without regard for the real world. But, I think we are far more responsive today than some might imagine. At the Deafness Research & Training Center, for example, we can not envision any of our efforts as being conducted separate from the field. We are firmly convinced that we must be in a position to respond to the needs in the field and the way to do that is to be out in the field where the action is.

In summary, it should be clear that in order to establish educational service programs, these four "institutions" must be working together and in harmony. And we haven't even mentioned parents.

Audiological Assessment of Deaf Children with Other Disabilities

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Assessment of hearing of the multiply handicapped child is a tall order! I do not intend, therefore, to delineate a "text book" or "cook book" recipe, but I would like to outline methods and types of disabilities briefly and go on from there to raise some questions.

Methods and Techniques of Hearing Assessment.

1. Straight Audiometric Testing---the child raises his hand when he hears the tone, he repeats words for speech audiometry, he communicates and understands what is expected of him.

2. Play Audiometry--When he hears the tone the child places a ring on a stick, a peg in a board, a block in a box, and seems to understand the relationship between the sound and the activity.

3. Conditioned Orienting Reflex Technique---the child is taught to localize and turn to the side of the sound, at which time a red light is blinked on that side as a reinforcement and reward. This may be modified by using a doll house, "lite-up" dolls, etc, but the principle is the same--we teach the child to localize and reward him for his correct response.

4. Observational Audiometry---used with young infants or with those multiply handicapped children unable to learn one of the more sophisticated methods. Two or more trained observers record responses which include generalized body movement, Moro's reflex, startle, eye blinks or other ocular movement, decrease, increase or cessation of an ongoing motor activity, crying or smiling, increased respiration. In other words, any change in the child's pre-stimulated behavior.

5. Auditory Evoked Potential Testing---a so-called objective technique which measures response by means of electrodes pasted to the skull, resulting in a picture similar to the EEG. We must be aware that the readings and evaluation of these responses can themselves involve much subjective judgment, on the part of the evaluator and are frequently inconsistent and difficult in the child, difficult to test by conventional methods.

6. Impedance Testing--which provides the otologist with objective information about the condition of the conductive pathway. Middle ear acoustic measurement can also be used to indicate eustachian tube dysfunction and monitors acoustic reflex, thus providing valuable diagnostic

information also. This method may involve problems with the multiply handicapped, hyperactive child who is loathe to allow anyone to touch him, won't wear earphones or can't sit still long enough for an adequate reading to be made.

7. Earphones Vs. Sound Field---Wherever possible, the test should be performed under earphones to get an accurate picture of the performance of each ear. We have found sometimes it is less time-consuming in the long run to have a "knock-down and drag-out" session (within reason, of course) in order to prove to the child that earphones don't hurt.

8. Operant Conditioning---Use of reinforcement by means of tokens and/or food---which may be used with all the above methods.

Kinds of Handicaps

1. Straight Deaf or Hard of Hearing---will condition easily and reliably, in one or more sessions---usually by age 2-2 1/2 years.

2. Deaf-Blind---with sensory deprivation difficult for us to envisage. These children must be taught a voluntary response to auditory stimulation. This can frequently not be achieved during one or more testing sessions, and it is here where good team work between audiologist and teacher must take place. In addition to testing, the audiologist can suggest methods of auditory training, the kinds of gross sounds the child may respond to, and the refinement of those sounds to a testable pattern.

3. The Child with Neurological Damage---will generally have difficulty in localization, is distractible and hyperactive, with a short attention span. These children require a great deal of patience in the learning of the task of responding. Frequently, a stimulus of exaggerated duration will serve to focus the child to what is happening in his auditory pathway, but we must be careful not to fatigue the ear. In addition, the rubella children have been observed to habituate quickly and stimuli, therefore, must be varied in intensity, frequency and order of presentation. These children present a great deal of difficulty in management within the test room as well as outside, and the audiologist will find herself making quick judgements which require above all, sensitivity to minute and subtle changes in the child's behavior.

4. Mental Retardation is frequently a component of a multiple handicap. The examiner must be sensitive to degrees of retardation and decide at which level and with which technique she approaches the child. Any method may prove successful---but for the audiologist, a thorough grounding in normal development is imperative.

5. The child may suffer from emotional disturbance (and which child with one or more handicaps is free of some difficulty in this area?). Here the audiologist must observe closely, must not "miss a trick" for she has the grave responsibility of deciding whether a withdrawn child is truly deaf or pseudo-deaf; whether he has removed himself from the world around him or whether he really cannot hear; whether his lack of

response is the result of physiological impairment of the auditory system, or the emotional and para sympathetic nervous systems. Amplification carelessly administered may cause untold damage both by physical damage to the pathway as well as by stimulatory overload which the child is unable to handle.

7. The language impaired child is yet another problem. I shall not go into detail here because all of you are familiar with the problems which such a youngster presents to us and with the problems he encounters within himself. Suffice it to say that any one of the methods of testing may apply to such a child. However, we have found that such rubella children frequently like sounds louder---even if hearing loss is minimal. Whether they get comfort and security from a large sound is difficult to say---but as the child grows older, we have sometimes found that audiograms appear to be of better quality and pure tone loss averages appear to decrease.

8. Then there is the child with everything rolled into one, with invisible as well as visible impairment; congenital heart disease, renal disease, constipation, chewing difficulties, endocrine problems, small stature, etc. Here, I would like to raise the question "What do we see when we see a multiply-handicapped child?" Are we faced with a deaf-blind child? A cerebral-palsied child with a ski slope audiogram who is unable to decode speech and therefore, has difficulty in understanding what is said to him? Is this compounded by frustration, anger and hostility because no one understands him? Has he been accepted or rejected by his peers or family? Do we see a child unable to walk or or to crawl? A child who has been kept in a crib without visual, auditory or emotional stimulation for most of his life? Is he tormented by pains which he is unable to describe or locate? I could go on ad infinitum with the possible combinations of impairments, but to no purpose except to confuse the issue.

While the audiologist is essentially interested in discovering how a child hears and at what levels and in what manner he communicates, this is made more difficult in the multiply handicapped child by our ignorance of which handicap is dominant. Is the deaf child immobilized because of his emotional overlay? Is a legally-blind child, with a hearing loss, more troubled because he can't hear well, or because the world is a visual blur? Does a child panic when confronted with a new situation, because he has spasticity and can't run away, or because his little heart beats wildly with fear at an unknown? All of these and more may very well influence audiometric results. It behooves us therefore, to cross our discipline into many others. We must be familiar and comfortable with knowledge of normal physical development, how the nervous system works, physiology, psychology, otolaryngology, behavior, pedagogy, X-Ray procedures, dental anomalies---and many others. Of course, we can't be experts in all areas---but we must train ourselves above all to be patient and alert observers. How does a child stand? What is his gait? Does he grind his teeth? Is eye contact avoided? Does he communicate verbally, by gesture, by pointing, by grunting, or none of these? Does a tactile approach disturb him, or, on the contrary, does he appear to feel no pain? If so, are we testing a deaf child who does not respond to sound or are we testing an impairment of some other modality? Is one

symptom such as "hyperactivity" masquerading for another---i.e., the active, unaided deaf child looking for clues. In short, when we do a hearing test, do we know what we are testing? Are we certain of our data? Or are we indiscriminately labeling? (a dangerous procedure). If not, are we prepared to take the time, as much time as necessary, to retest and reevaluate, to watch for similarities and differences among tests and to make adequate notes so that comparisons and evaluations can be made?

The multiply handicapped child cannot be diagnosed quickly. During repeated test situations and in prescribing amplification, we attempt to construct a continuity for him. We do not want to delimit further his horizons---but rather think in terms of enlarging his world. This takes patience, knowledge, hard work and courage---for time consuming as the evaluation may be, we must make many small judgements in order to build toward a diagnosis and a program of management. Good clinical judgement and observation, and above all, sensitivity to the child are imperatives. Reinforcements may vary; stimuli may vary; the child himself may vary in behavior from one test to another depending on his age, state of health, amount of sleep, wet pants or diaper, length of trip prior to testing, season of the year and weather, degree of hunger or thirst---or many other such consideration. But what must not and cannot vary must be the audiologist's attention to every change in the child's behavior, her devotion to his interests, her determination to learn more and more about him and others with similar problems, and her awareness that the multiply handicapped child is a challenge and a joy; wearying but stimulating---each child a world unto himself for us to behold, fathom and help.

Just recently, I have seen two children who had been referred to us as a "last ditch" measure. One is a boy of 7 1/2, from a Spanish speaking home, retained in Kindergarten for 2 years, now sitting, head in hands or on a desk, in a first grade classroom, accomplishing nothing, learning nothing, socializing never---a loner and a lost soul. Hospitalized 3 years ago in a psychiatric facility for setting a fire, he was removed by his mother because "he was beaten there". Since then he has been judged by one psychologist and one psychiatrist to be so emotionally disturbed that residential placement was recommended. Mother is worried because her child is a non-learner. NO ONE had tested this child's hearing. Yet, when he came to me, he was sweet and cooperative, understood what I asked of him, and a reliable audiogram was obtained showing a severe mixed hearing loss with a flat configuration in the left ear and a moderate sensorineural hearing loss with sloping configuration above 1000 Hz in the right ear. Of course, speech is characterized by many articulation difficulties compounded by Spanish accent and inflection. Query---Is this child truly a candidate for a residential school. Has someone "missed the boat" in not assessing hearing loss early and prescribing amplification for this child who neither hears well nor understands what goes on about him? Will a hearing aid help now? We shall see.

The second child is a girl of 12 1/2, also from a predominantly Spanish-speaking home, born prematurely, who has been in a Class for Retarded Mental Development for 6 years. She too is cooperative and gave a reliable audiogram which shows bilateral moderate mixed hearing loss---

with SRT's which correspond well with pure tone averages. When questioned she said "No, she didn't hear everything the teacher said". (Such a simple question, the answer to which could yield such results!) She was an infant at risk, yet no one had thought to test her hearing! How could she learn? What irreparable damage has been done to this girl? Can amplification now perform a miracle and turn back the clock? I doubt it---but we must try, mustn't we?

I cite these two by no means isolated cases to illustrate my point---addressed not only to audiologists but also to teachers. The children may not have been multiply handicapped to begin with, but they certainly are multiply handicapped now---auditorally, educationally, emotionally, socially and in family relationships.

We all share the burden, responsibility, and if necessary, the guilt for children such as these.

We have not the space to inspect the whole area of parent participation, counseling, management, amplification, aural rehabilitation and, of course, education of physicians or educators. These are most important aspects of our task which would need a course of study in and of themselves.

Deafness and Mental Retardation

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Mental retardation appears, on the basis of available evidence, to be the single most frequent additional handicapping condition associated with deafness. The literature on problems of persons in whom both handicaps occur, however, is severely limited. This paper will present a brief overview of definitions, prevalence, identification, education and vocational rehabilitation with mentally retarded deaf people.

Definition of Mental Retardation

Mental retardation is usually defined more in terms of an individual's level of adaptive behavior than in terms of IQ alone. Kirk (1962) has distinguished four levels of functioning of mentally retarded individuals:

- a. The Slow-Learning---Those who are not considered mentally retarded because they are capable of achieving a moderate degree of academic success even though at a slower rate than the average child. They are educated in the regular classes without special provisions except an adaptation of the regular class program to fit slower learning ability. At the adult level they are usually self-supporting, independent and socially adjusted.
- b. The Educable Mentally Retarded---Those who, because of slow mental development, are unable to profit to any great degree from the programs of the regular schools, but who have these potentialities for development: (1) minimum educability in reading, writing, spelling, arithmetic, and so forth; (2) capacity for social adjustment to a point where they can get along independently in the community; (3) minimum occupational adequacy such that they can later support themselves partially or totally at a marginal level. The term "educability" then refers to minimum educability in the academic, social, and occupational areas.
- c. The Trainable Mentally Retarded---Those who are so sub-normal in intelligence that they are unable to profit from the program of the classes for educable mentally retarded children; but who have potentialities in three areas: (1)

learning self-care in activities such as eating, dressing, undressing, toileting, and sleeping; (2) learning to adjust in the home or neighborhood, though not to the total community; and (3) learning economic usefulness in the home, a sheltered workshop, or an institution.

- d. The Totally Dependent Mentally Retarded---Those who, because of markedly subnormal intelligence, are unable to be trained in self-care, socialization, or economic usefulness, and who need continuing help in taking care of their personal needs. Such children require almost complete supervision throughout their lives since they are unable to survive without help.

Prevalence

Estimations of the prevalence rates of deafness and mental retardation occurring together vary quite widely. As might be expected, one reason for the fluctuation has been disagreement on definitions to be used in making the determinations of deafness and of mental retardation. Another consideration is that misdiagnoses are unfortunately common, with many deaf individuals wrongly classified as mentally retarded or emotionally disturbed. A third factor meriting concern is that substantial numbers of mentally retarded deaf individuals are not in any educational, vocational rehabilitation or mental retardation programs.

One estimate of the prevalence of mental retardation in a deaf population is that provided by the Annual Survey of Hearing Impaired Children and Youth (1970). Reporting on approximately 21,000 students on whom the appropriate information was available during the 1968-69 academic years, the ASHICY found 80.5 per 1,000 (N=1,700) students to be deaf and retarded. This rate is similar to the 70 per 1,000 reported by two smaller surveys of state school populations in New York and New Jersey (Stewart, 1972). It should be noted that these are rates within schools and classes for deaf children and institutions for the mentally retarded, respectively. The rates serve as an indication of the scope of the problem, not as proportions to be expected in the general population.

Identification

Identification of mentally retarded deaf individuals is complicated by a lack of specially trained personnel and of instruments designed specifically for this purpose. When parents, physicians or teachers refer a mentally retarded deaf child for diagnosis, it is usually because of such behavioral indices as slow development, learning difficulties and social immaturity. Alternatively, these indices may be interpreted to reveal brain damage or emotional disturbance rather than mental retardation. Particularly in young children, deafness may be obscured by more readily observed indications of other handicaps. Unfortunately, an intellectually normal deaf child's difficulty with language and speech may be inaccurately interpreted to mean the presence of mental deficiency.

For these reasons Stewart (1972) and Vernon (1969) among others, recommend that the diagnosis be made by a psychologist experienced in working with deaf people.

Stewart and Vernon also recommend that the diagnostician's first task should be that of determining whether or not deafness is in fact present. Only then should an evaluation of intellectual functioning be undertaken. Recommended instruments for psychological testing with deaf children include the Performance Scale of the Wechsler Intelligence Scale for Children (WISC), the Leiter International Performance Scale and Raven's Progressive Matrices. With deaf adults, the Wechsler Adult Intelligence Scale (WAIS) performance scale and the Leiter-Parkington Adult Performance Scale may be used. As noted above, however, intellectual functioning alone should not be considered sufficient basis for classification of an individual as mentally retarded.

Education

Programs for the education of mentally retarded deaf children are provided in residential schools for the deaf, residential schools for the retarded, and experimental programs in residential settings exclusively for mentally retarded deaf children (Page and LaPlace, 1972). Leenhouts (1964) has suggested that the ideal facility for these children would be a separate unit on the campus of a residential school for the deaf (see also Hehir, *vide ante*).

The literature on education with mentally retarded deaf children is largely concerned with admission procedures (Anderson and Stevens, 1970) and modifications in regular programming (Glovsky and Rigrodsky, 1963). One frequent comment is that these children present the greatest problems not in the classroom but in residential settings because of their immaturity and dependency. Farman (1972) and Leenhouts (1964) in particular are concerned with these problems of adjustment to residential living.

In the classroom itself, emphasis on contingency reinforcement and behavior modification procedures has been suggested (Glovsky and Rigrodsky, 1963). Use of sign language has also been proposed (Johnson, 1972).

The most pressing educational problem with mentally retarded deaf children, however, concerns those children not in school. Vernon (1969) has been especially insistent on this problem. The child whose intellectual functioning is too low for admission or retention in a school for the deaf may be "too smart" for admission into a program for the mentally retarded. As a result, the child is suspended in no man's land. There are, at present, few intermediate programs for this child.

Vocational Rehabilitation

Effective vocational rehabilitation programming for mentally retarded deaf persons prior to 1965 was severely limited by the requirement

of "a reasonable expectation" of eventual employment before V.R. services could be made available. Public Law 89-333, however, extended the maximum evaluation period to 18 months, thereby significantly influencing the extent to which mentally retarded deaf individuals could receive vocational rehabilitation services. The 18-month period could be used not only for evaluation but also for basic personal and work adjustment training. The potential provided by the law has yet to be reached, however, with services for mentally retarded deaf adults available only in a few specialized centers such as those in Hot Springs, Arkansas and Columbus, Ohio. The VR Act of 1973 promises more attention to this group.

An excellent guide for counselors working with mentally retarded deaf adults is provided in Cramatte and Miles (1970). This manual discusses in some depth recommended procedures for identification, evaluation, training, placement and follow-up with mentally retarded deaf clients.

Conclusions

This brief review has identified some parameters in serving mentally retarded deaf people. It should be apparent that the needs of this population are seldom satisfactorily met. In some cases, further research is needed to clarify exactly what the problems are. In other cases, the problems are known but there are at present inadequate facilities for their solution.

Modified Manual Communication with Deaf-Blind Children

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Deaf-blind children have always presented unique problems in education, habilitation, and communication. The worker in this field is exposed to a daily and never-ending series of frustrations, marked by occasional small gains. Not everyone is born a Helen Keller!

Today's young deaf-blind population is made up in large part of children who are not only deaf-blind but are multiply handicapped, particularly with rubella involvements. They present severe learning disabilities. Traditional methods of early education are frequently ineffective with these children. Fingerspelling and/or Braille have little if any success in achieving communicative contact, because the children lack a language base on which to build.

Recently the Deafness Research & Training Center of New York University's School of Education undertook a pilot project to test the effectiveness of modified manual communication (sign language) with young deaf-blind children in an educational setting. In January 1973, at the request of Mr. Khogendra Das, Coordinator of Mid-Atlantic North and Caribbean Region, Services to the Deaf-Blind, U.S. Office of Education, the Deafness Center began this pilot project at the New York Institute for the Education of the Blind, in the Bronx, New York.

The New York Institute for the Education of the Blind, one of the largest and most prominent educational institutions of its type in the country, has a deaf-blind department for about 75 children. They represent only a part of the total student population at the Institute and are housed and taught in a separate building of the Institute, Frampton Hall. Over the last two years or so, a number of the Institute's staff have been taking courses in manual communication. These teachers have in turn introduced manual communication among their deaf-blind children.

For purposes of this discussion the term deaf-blind refers to deafness with severely impaired but still functional vision, and indeed this was the actual target population involved in this pilot project. The theoretical rationale for introducing manual communication was that gross hand-arm movements are far more visible to these children than is the written word. Sign language furthermore, is a concept-oriented gesture language which describes objects by their shape or function, and by reference to the action involved. Like English, it has more than one sign for a concept. It is probably the oldest form of communication known to man, and certainly it antedates verbal communication. Deaf children pick it up and use it quite naturally, whether or not they have been taught to use it properly. Manual communication, then, seemed to

present some promise for reaching severely visually impaired deaf children for purposes of education and communication.

The Deafness Center provided 40 hours of special instruction to the Institute's teaching and professional staff, as well as to house-parents and some parents themselves. The breakdown is as follows:

<u>Disciplines</u>	<u>Number of Trainees</u>	<u>Male</u>	<u>Female</u>
Educators	17	2	15
Administrators	2	2	
Speech Therapists	1		1
Attendants	30		30
Program Supervisor	1		1
Parents	5	2	3

Total Trainees: 56

Throughout the course enthusiasm and interest remained very high. Stress was placed on vocabulary building in sign language, using for the most part child-oriented concepts and words involving play, clothing, holidays, things to do, food, vocational (shop) signs. Connectives were added, to enable trainees to form simple sentences to give meaning and structure to what they were saying.

At each session the teachers and other personnel discussed the results of their introduction of the signs learned during the previous week. Modifications were proposed and adopted for signs which did not seem visible enough to the young children. As an example, take the sign for "smooth". This sign calls for rubbing the thumbs slowly across the fingertips of the upturned hands, from little finger to index finger. This sign is not sufficiently visible to children with severe visual impairments, for the movement of the thumbs is essentially limited and restricted, and all that is seen by the child is a pair of upturned and somewhat closed hands. A modification was proposed and adopted: the fingertips of the right hand repeatedly stroke the inside of the left forearm held at the level of the child's eyes. Here, though the actual sign has been changed or modified, the concept of smoothness remains intact. The inside of the forearm is a very smooth part of the body, the stroking movement emphasizes or reinforces this. The thumbs' movement across the smooth fingertips, only minimally visible, is thus transferred, concept intact, to a stroking movement involving the inner forearm.

The primary goal here was to adopt modification and other refinements of basic sign language, wherever indicated, to emphasize gross movement without losing essential pertinence. As experience grew, it was found that the Institute staff, under the Deafness Center's direction and with its encouragement, became increasingly innovative and creative in "inventing" appropriate modification of basic sign language.

With the Deafness Center's guidance, however, veracity in sign language structure was maintained, and the superfluous was avoided.

Deafness Center personnel involved in this project also visited classes for first-hand observation of actual use of sign language with the children. Teachers seemed uniformly enthusiastic over results.

They reported, six months later, that all children exposed to manual communication knew and understood some signs; that meaningful communicative contact had been established for the first time, where there was none whatsoever before. One young girl was reported, eight months after initial exposure to manual communication, to have a vocabulary of 1,000 words, where she had no vocabulary before. Many of the children had, for the first time, achieved such minimal attributes as self-awareness, through signs.

In terms of the education of deaf-blind children, this project appears to have intriguing implications over the long term. It is planned to package the course, involving the production of a manual containing sign-language words and concepts, and appropriate modifications agreed upon, and distribute this material to other regional centers for deaf-blind children. The Deafness Center will continue to furnish staff expertise and suggestions during the introductory phase of this project at other regional centers, and will assist in arranging for instruction and other direct services at these centers.

Deafness and Ethnic Minorities

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One might reasonably ask whether membership in an ethnic minority group should be considered a handicap for a deaf individual. Should a black deaf person, for example, be considered multiply handicapped?

Stewart (1971), considering various definitions of the term "multiply handicapped," implied that only physical or mental conditions would be included. On the other hand, problems of ethnic minority group persons are no less real for being attributable largely to conditions in society. Perhaps the most satisfying approach to this question would be to recognize that individual differences in education, training, family background and social experiences may handicap some ethnic minority deaf persons more than others. This approach sensitizes us to the differences within groups as well as between groups. We may then ask: What societal conditions may handicap a deaf person who is a member of an ethnic minority group?

In responding to that question, we will review some educational and vocational conditions which may have deleterious effects on deaf persons who are black, Puerto Rican, Oriental or American Indian in ethnic identity. The major emphasis will be upon black deaf persons for reasons involving their numbers and the current availability of research literature.

Educational Conditions

A major concern of educators of deaf children is with identification at the earliest possible age so that measures may be instituted to help the deaf child take maximum advantage of his potentially most fertile learning years. It is with identification that societal conditions begin handicapping an ethnic minority deaf child.

Speaking of black deaf children in Illinois, Harper (1972) reported later identification than was found with most white deaf children. Eng (1973) has revealed that as a result of cultural and linguistic factors, identification of deafness in Chinese children in New York City presents formidable problems. Cultural and linguistic influences of a very different order have similar effects on identification of Puerto Rican and American Indian deaf children (Hairston and Smith, 1973). Since delayed identification of deafness in a child has serious consequences, membership in an ethnic minority group is likely to exacerbate the consequences of deafness.

It has been established that the language a child learns is that which he hears. The current state of the art does not permit such definitive statements about the language(s) a child doesn't hear. In the present context, the concern is with the development of a deaf child whose at-home and at-school languages differ---a black dialect, Spanish, Chinese or some American Indian dialect at home, Standard English at school. A further concern is with the child exposed to the restricted language Bernstein (1967) has found to characterize lower-class homes.

The concern is not limited to the difficulties an ethnic minority deaf child might encounter in learning language, speech, speechreading and formal signs. It extends also to the affective influences on a child whose most personal communication systems---gestures and facial expressions in very young deaf children, signs and fingerspelling in older deaf children---and whose at-home (familial) communication system are both rejected by the school and its teachers.

Ladson (1972 a) has forcefully opposed the exclusion of Black English from the curriculum in schools for the deaf. Similar questions must be raised concerning the at-home languages of other ethnic minority deaf children. Perhaps the approach suggested by Stokoe and Woodward concerning using one language to teach another might be feasible (see O'Rourke, 1972). To the extent that a particular child may have incorporated a given language, that language might be recognized by his teachers and used as a base from which to learn English. Schlesinger (1973) has placed special emphasis on the need for recognizing and accepting the legitimacy of a child's language.

The issue of placement is one that must be confronted. Jones (1971), writing in Exceptional Children, charged that disproportionate numbers of ethnic minority children are placed in "slow learning" classes in California public schools. The extent to which this occurs in schools for deaf children is not known although the question has been raised by Harper, among others. Bowe (1971) has discussed segregation by race in residential schools for deaf children. That such segregation may still be widespread is suggested by Ladson (1972b) who charges that desegregation in schools for the deaf following the Supreme Court's historic 1954 decision was more apparent than real. At any event, to the extent that membership in an ethnic minority group may result in undesirable placement for a deaf child, to that extent his membership in the group is handicapping.

Another important issue related to the education of ethnic minority deaf children is that involving educational materials. Within the past five years an increasing emphasis has been placed on investigating substantive and formal characteristics of texts used in schools (Waite, et al, 1967). While a number of publishers have attempted recently to make their products less biased toward white, middle-class

cultural values, their efforts have left much to be desired. Ladson has attacked the "racism" inherent in these attempts as well in the results, charging that the texts are little improved.

The same fundamental issues are involved in considering teacher characteristics. Vernon and Makowsky (1969) and Hairston (1973) have discussed the need for teachers who share the essential characteristics of their students. The low prevalence of deaf teachers and the near absence of ethnic minority deaf faculty in schools and classes for deaf children may have effects similar to those found with white middle-class teachers of disadvantaged children in public schools (Cheyney, 1966). These effects include perceptions by the teachers that the children's values are manifestly inferior to their own, self-fulfilling prophecies about a child's limited ability, low job satisfaction and a correspondingly high turnover rate.

The conditions we have considered may vary in their effects upon deaf children of different ages, abilities, socio-economic and ethnic background. Whatever their individual effects, the educational achievement levels of ethnic minority deaf children appear, on the basis of limited evidence, to be lower on the whole than those of white deaf children (Bowe, 1971). Studies have suggested that years of school attendance, proportion graduating from schools, proportion attending college and proportion receiving baccalaureate degrees are all lower among ethnic minority deaf persons than among the white deaf population. These findings are discussed by Bowe (1971, 1972) and Smith (1972).

Recent developments have been encouraging in suggesting that deleterious conditions affecting the education of ethnic minority deaf children may be alleviated to some extent in the near future. Among the more salubrious occurrences have been the establishment of the Kendall Demonstration Elementary School for the Deaf and Gallaudet College's new program of special services for disadvantaged students. The ready willingness of the Convention of American Instructors of the Deaf and the Alexander Graham Bell Association for the Deaf to hold special symposia on problems and needs of ethnic minority deaf children is similarly encouraging.

Research is urgently needed on improved identification procedures, preschool services, parent education, educational materials and methods, and after-school programs with ethnic minority deaf children and youth.

Vocational Conditions

The undereducation of ethnic minority deaf persons contributes to underemployment and unemployment in excess of that found with white deaf individuals (Bowe, 1971). Difficulties with English usage, speech and speechreading, as well as deficiencies in academic preparation present major barriers to employment.

Substantial numbers of handicapped individuals, including many ethnic minority deaf persons, have been helped through vocational rehabilitation. Effective as VR may be, however, it is powerless until a person has been brought into the rehabilitation process. With rehabilitation, as with education, identification of ethnic minority deaf persons is a major concern.

One aspect of this problem involves racial segregation in the deaf community. Ethnic minority deaf individuals may become victims of indirect discrimination by virtue of not receiving information about rehabilitation and employment as readily as is the case with the white deaf community. Studies by Hairston and Smith in Los Angeles indicated that identification of black deaf persons required special case finding efforts. Eng reports similar problems with the Chinese deaf community. An attempt to locate American Indian deaf persons in Los Angeles failed to uncover more than three individuals with hearing impairments (see Hairston and Smith, 1973).

Efforts by New York University Deafness Research & Training Center have met with more success, although improvements are still needed. Utilizing ethnic minority deaf paraprofessionals as community relations specialists, intensive casefinding in poverty areas, a census of deaf persons in New York City and related approaches has resulted in the identification of substantial numbers of black and Puerto Rican deaf persons. Once brought into the rehabilitation process, these persons have generally been able to receive the assistance they requested.

Having found these persons, we are beginning to understand their problems more completely. In a city which requires an income of \$7,400 to support a family of four at poverty levels, according to the Bureau of Labor Statistics, more than nine in every ten black and Puerto Rican deaf persons served at the Deafness Center reported incomes below \$6,000 per year. Puerto Rican clients, in particular, were extremely disadvantaged, with more than half reporting incomes at or below \$1,200. Unemployment was reported by eight in ten Puerto Rican deaf clients, while over two-thirds of the black deaf clients were unemployed.

While these figures pertain to clients served at the Deafness Research & Training Center and not to the total New York City ethnic minority deaf population, the findings do serve to provide some measure of the problems faced by many ethnic minority deaf individuals.

A more comprehensive view is provided by figures from the National Census of the Deaf Population, which reveal unemployment rates among nonwhite deaf persons roughly twice the rates found among white deaf individuals. Similar findings have been reported by Schein (1968), who investigated demographic characteristics of the Washington, D.C., deaf population during a period of relatively high employment. White deaf persons found the favorable economic climate conducive to securing satisfactory employment, but nonwhite deaf persons experienced considerably greater difficulty.

Among white deaf men in Schein's survey the unemployment rate closely approximated that for hearing white males. Among nonwhite deaf men, however, the unemployment rate was 16.9. Nearly half the nonwhite deaf women in the labor force were unemployed. Similar findings were made concerning earnings. While white deaf persons compared favorably to white hearing persons overall, nonwhite deaf men averaged \$2,600 annual income. Among nonwhite deaf women the median income was \$990.

What do undereducation, high underemployment and unemployment, ethnic minority group membership and deafness mean in everyday terms? For an ethnic minority deaf man living in New York City, the picture might look something like this. His reading level is likely so depressed that even the daily newspaper presents a formidable challenge. Jobs, when he is able to obtain them (usually through his own efforts, with the assistance of his friends), will probably be in the secondary labor market and will frequently be part-time assembly-level positions. He works for a living but not necessarily for a living wage. His apartment will be rent-controlled (even a barely liveable apartment in New York costs \$100 per month) and will be located in a designated poverty area. His leisure-time activities are typically limited to those planned by him and his friends, the bulk of whom are similarly deaf and members of the same ethnic minority group. The white deaf community rarely encourages him to participate in its activities. He is almost certainly not a member of the NAD, does not get the Deaf American, probably has never heard of PRWAD, RID, or IAPD. Interaction with hearing members of his ethnic minority group is as limited as that of white deaf persons with white hearing persons, perhaps even more so.

On the basis of this review of the effects of deafness and ethnic minority group membership on identification, acquisition of speech and language, education, rehabilitation, employment and social interaction, it does seem that ethnic minority deaf persons may be considered multiply handicapped.

CHAPTER IX

Problems of Severely Handicapped Deaf: Implications for Educational Programs

Larry G. Stewart, Ed.D.

In recent years the literature dealing with the education and rehabilitation of deaf people has given increasing attention to those who are referred to as either multiply handicapped, severely handicapped, or seriously disadvantaged. Several recent publications, in fact, focused exclusively on the problems and needs of these low achieving deaf people.¹⁻⁴ Generally this literature made a definite contribution in that it uncovered the size and magnitude of the problems involved in educating and rehabilitating severely handicapped deaf people. Yet, as one reviews the scene it becomes abundantly clear that the field has yet to mount a concerted, systematic attack on the problems that beset these people and the lack of effective teaching methodology.

There are several central obstacles that impede our work with severely handicapped deaf people. The first is that of vague nomenclature. The terms used in reference to the population with which we are concerned have been inadequate if not actually misleading. For example, under the broad rubric "Multiply Handicapped" come such multiple handicaps as deafness/blindness, deafness/cerebral palsy, deafness/minimal brain dysfunction, deafness/emotional disturbance, deafness/paraplegia, and, of course, various combinations where the individual has three or more handicaps. Thus, the term "Multiply Handicapped" tells little more than that two or more handicaps are involved. Development of a nomenclature that permits good communication among other workers is the only hope for reaching a better understanding of our work.

Second, the literature suggests we have given adequate attention to describing the physical bases of multiply handicaps⁴, but comparatively little attention has been given to the socio-cultural and family interaction variables that possibly may account for the severity of impact of many disabilities. I suggest that much greater attention should be given to these variables since they are amenable to early therapeutic intervention.

Third, a sampling of the literature⁵⁻⁸ reveals that systematic teaching methods based upon principles of behavior modification yield gratifying results with deaf children having emotional problems and learning disabilities. Yet, many schools and rehabilitation programs do not apply this knowledge with their deaf students and clients. Instead, many continue to use a strict disciplinarian approach based on the view that the child or client is stubborn or "just doesn't want to work".

Fourth, the work of Media Services and Captioned Films and other media production facilities amply demonstrates the great contribution of special-

^aReprinted from American Annals of the Deaf, June, 1971, with permission.

ly designed instructional media in working with deaf people. Yet, educators and rehabilitation workers with severely handicapped deaf people face an almost complete absence of instructional media appropriate for application with those having very limited verbal skills. At this time there appear to be no plans for a large scale attack on this most serious problem.

Finally, educational and rehabilitation programs for severely handicapped deaf people have gained important knowledge concerning the problems and needs of these people. However, only minimal attempts are made to synthesize this knowledge and make it available to other educators and rehabilitation workers with the deaf. This cross-exchange of information is vital to progress, and yet the gap between research and dissemination of findings remains great.

This report identifies some of the problems and needs of a selected group of severely handicapped deaf adults and discusses their implications for educational and rehabilitation programs. Hopefully, it is a step forward in closing the gap between research and practice.

The Population

The problems and needs discussed were identified through a rehabilitation program for multiply handicapped deaf adults at the Hot Springs Rehabilitation Center, Hot Springs, Arkansas. This program, initiated in June, 1968, is jointly sponsored by the Social and Rehabilitation Service, U.S. Department of Health, Education, and Welfare, and the Arkansas Rehabilitation Research and Training Center. It is a five-year research and demonstration project designed to evaluate the feasibility of a program for multiply handicapped deaf adults within an ongoing comprehensive rehabilitation center.

A total of 106 clients constituted the sample from which the data were obtained; of these, 73 were males and 33 were females. Ages ranged from 14 to 43 years, with an average age of 20.3. They were referred to the Center by State Vocational Rehabilitation Agencies from throughout the country. Eligibility requirements for enrollment included: (1) a hearing loss in the better ear judged to render hearing nonfunctional for the ordinary purposes of life; (2) intelligence quotient of 70 or above as measured by a standardized performance-type intelligence test; (3) a reading achievement grade level of 4.0 or less; (4) a history of, or the strong prospect of, unemployment or serious underemployment, and; (5) freedom from physical mobility restrictions and emotional or behavioral patterns that would make it impossible for the individual to participate in Center activities.

The Hot Springs Rehabilitation Center provides evaluation services, dormitory living facilities, medical services, counseling, and vocational training in 34 different occupations to a daily enrollment of 450 handicapped clients. Approximately 30 to 35 of these are multiply handicapped deaf people. The latter avail themselves of many of the services of the Center, and additionally are served by specialists with the deaf in the

following areas: vocational and psychological evaluation, counseling, tutoring or special education, personal adjustment training, and work adjustment evaluation and training. In vocational training areas, some instructors are fairly adept with manual communication while others rely upon gestures and writing with their deaf students. From time to time specialists with the deaf interpret classroom lectures for deaf students.

The Findings

The findings of the project with multiply handicapped deaf people are summarized in the following order: Communication Problems, Behavior Problems, Motivational Problems, and Program Limitations.

Communication Problems

As might be expected, seriously impoverished communication skills emerged as the most common problem of the 106 subjects. With very few exceptions, they were quite limited in their ability to speak and speech-read. For most, speech as both an expressive and receptive communication tool was practically useless. Their communication with other students and staff was most often through manual communication, gestures, and demonstration. Writing with pad and pencil was of some value at a very simple level, but most interaction did not permit the slow pace involved in writing.

The reading skills of the subjects were at an extremely low level considering their intelligence. The average I.Q. score on the Wechsler Adult Intelligence Scale, Performance Scale, was 91, which indicates low average intelligence. However, the average reading grade level scores, as measured by the Stanford Achievement Test, Intermediate Battery, were 3.2 (Word Meaning) and 2.8 (Paragraph Meaning).

An interesting and quite significant finding was that only one of the subjects came from a family where one or both parents were deaf. This finding suggests that the nature of early family interaction may be one of the most important correlates of level of achievement. It has been generally accepted that deaf parents communicate much more with their deaf child than do hearing parents. If family interaction is in fact a great contributing factor to the severity of a handicap, then this could account for the fact that only one subject had deaf parents.

Another aspect of the low reading skills of the subjects concerns prior education. Surprisingly, the average age at beginning school was 6.5 years, and the average number of years in attendance was 11 years. A large majority of the subjects attended state residential schools for the deaf (N=85); 12 attended special classes within public schools; and the remainder attended public school regular classes or special classes in parochial schools. The average age at completing secondary school was 17.6 years. Forty-nine subjects completed school with an academic or vocational certificate, 20 dropped out of school, and 31 were discharged for disciplinary reasons. Of the 79 subjects on whom this information was available, 53 attended regular academic classes and only 26 were placed in special classes for multiply handicapped deaf children.

The impact of the communication problems of the 106 subjects at the Hot Springs Rehabilitation Center was severe. The center is primarily oriented toward vocational training, but the low communication skills of the deaf subjects prevented satisfactory participation in vocational training activities. This necessitated special tutoring and personal adjustment training to strengthen communication skills, but as might be expected such efforts required extensive periods of time during which it was difficult for the subjects to sustain their initially high level of interest in their training activities. It may be stated that the communication problems of the subjects contributed significantly to the high dropout rate at the Center, which totaled 55% through January, 1971.

Behavior Problems

"Inappropriate", "inadequate", and "impulsive" best describe the behavior of a majority of the 106 subjects in the Hot Springs Rehabilitation Center milieu. In fact, the behavioral characteristics of most of these subjects were such that 17 were given disciplinary discharges and 29 either dropped out or were withdrawn because of poor progress in training. Behavioral problems included temper outbursts, fighting with students and staff, intoxication, refusal to obey orders of staff members, social naivete and unruliness, and being late for classes consistently. Most of these problems disappeared for individual subjects as they learned appropriate ways of behaving, but those who demonstrated poor impulse control along with hostile, aggressive behavior were invariably discharged.

Two aspects of the behavior of the subjects warrant brief discussion. First, there was a noticeable tendency among many of them to view their training and future employment as meaningless. They seemed to lack an understanding of why they should learn a vocation, how their training was related to future employment, and their responsibilities as productive workers. These seem to suggest that the subjects had poor or underdeveloped concepts concerning work and themselves as workers, and because of their communication deficiencies it was difficult for them to learn proper concepts without extensive exposure to work experiences and verbal discussions with staff members.

The ratings of performance of the subjects in their secondary school education, when contrasted with their actual behavior of the subjects at the center, raises a question concerning the behavior standards applied in secondary schools as opposed to the expectations of vocational training schools and employers. By way of illustration, the Table shows that most subjects rated fair or better in their vocational training while in secondary school, and also rated high in their relations with other students and staff in class as well as in the dormitory.

These ratings suggest that secondary school personnel have either lower standards of behavior for their multiply handicapped students or at least rate them higher than warranted. Regardless of the reason, it seems possible that some of the ineffective behavior of the 106 subjects was more or less accepted by secondary school personnel, and that efforts were not directed toward modifying behavior that is not acceptable in the world of work.

Selected Ratings of Secondary School Personnel
on Behavior of Multiply Handicapped
Deaf Students

Variable	Ratings			N of Ratings Made
	Good	Fair	Poor	
Motivation for Learning	17	39	22	28
Behavior in Class	32	37	12	25
Relations with Students	28	32	7	41
Relations with Staff	36	27	7	36
Conduct in Dormitory	25	31	8	42
Vocational Training Performance	15	31	15	44

Motivation. As already discussed briefly low levels of interest or motivation characterized many of the 106 subjects. This was expressed in disinterest in vocational training, withdrawal from social activities, limited participation in recreational activities, and generally depressed or withdrawing behavior. The poor communication skills of the subjects, their frustrations from past failures, and their somewhat greater dependency explains the low motivation level. However, the fact remains that they perceived little that interested them in their environment, and seemed to lack knowledge of how to pursue new activities in their leisure time.

Program Limitations

Serving multiply handicapped deaf adults requires a rehabilitation service program designed to meet their unique needs. This does not imply that the problems of this group of people are not shared by other handicapped and disadvantaged populations. However, the multiply handicapped deaf are unique in that they have other significant handicaps in addition to deafness and its associated communication problems. Thus, while many elements of a general rehabilitation program can be useful to multiply handicapped deaf people, their problems are such that special services are mandatory if their adjustment and training needs are to be met. These special services are not so much different from those provided to others. However, they are required in unique combination, and provided through staff members who understand their varied problems and communicate effectively with them.

Multiply handicapped deaf people need exposure to the same kinds of experiences all people encounter in the developmental process. They need to learn to care for themselves; to get along constructively with others; to conduct themselves in a manner acceptable to others; to work productively in employment that gives them satisfaction, and to develop skills that will enable them to use their time well. These skills can be taught through a work adjustment center; through dormitory and recreational activities; through counseling, guidance, and vocational training activities; through classroom instruction; through exposure to the broader community outside the training facility; and, most importantly, through opportunities to try

out new behavior.

The Hot Springs Rehabilitation Center is one of the better comprehensive rehabilitation centers. Its combination of training and adjustment services are offered in only a few other settings across the country. Nevertheless, its success with multiply handicapped deaf people is limited in important ways. First, and perhaps foremost, it is unable to recruit sufficient numbers of staff members trained in a professional discipline who understand the needs of multiply handicapped deaf people and have expertise in meeting these needs. This has meant that many of the underlying needs of the 106 subjects went unrecognized and thus unmet. Having to confront peripheral problems daily, it has not been possible to move rapidly and decisively toward more effective diagnostic and treatment approaches.

Second, the center is able to offer only a limited number of vocational training opportunities to multiply handicapped deaf clients. Many of its 34 training areas are automatically closed to them because they either lack the communication skills necessary to succeed on their own or the instructors do not possess the communication skills to impart knowledge. Even in the training areas the clients have entered, benefits have been limited because of their communication problems and personal or social needs.

The special services provided by special workers with deaf clients--- counseling, tutoring, and personal adjustment instruction---are unnecessarily limited because of inadequate resource materials. Textbooks, workbooks, visual media, and the like, with a level of language and content appropriate for the needs of the clients, are either unavailable or in short supply.

Finally, in a very real sense some of the unusual needs of multiply handicapped deaf people have conflicted with the needs of other center students and staff. The center places strong emphasis upon vocational training, and expects students to conduct themselves in a mature and socially acceptable manner. Behavioral problems are expected and dealt with to a reasonable extent with all students, but when certain rules against fighting, use of alcohol, and the like are broken, the student must be discharged if his case is judged serious enough. This policy is followed by most training schools, as well as by most schools for the deaf. In fact, 31 of the 106 subjects were discharged from secondary schools for disciplinary reasons prior to their enrollment at the Hot Springs Rehabilitation Center. Yet, it must be firmly stated that programs for multiply handicapped deaf people should be able and willing to deal constructively with the behavioral problems that are a natural outgrowth of their life circumstances. This suggests that elementary, secondary, and post-secondary educational and rehabilitation programs should adopt new, more constructive approaches in dealing with behavioral problems. While discharging the student may solve the school's problem, it does not meet the individual student's needs.

Implications for Educational and Rehabilitation Programs

The findings reported in the preceding sections may be given tentative interpretation, and implications suggested for educational and rehabilitation programs serving multiply handicapped deaf people.

Pre-School and Elementary Education

The findings point rather strongly to the important role played by social, cultural, and family interaction variables in determining the severity of the handicaps of multiply handicapped deaf people. The subjects in the Hot Springs project were definitely not limited primarily by diagnosed physical disabilities but, rather, by communication deficits and maladaptive interpersonal relations skills. While the average subject entered school at the age of 6.5 years, and spent 11 years in attendance, communication deficits and behavior patterns were not remedied to the point where he could benefit fully from vocational training at the post-secondary level.

This suggests that attention must be given to fostering better family interaction patterns where the young deaf child is involved. This would seem to involve parent education and counseling aimed at helping parents to understand deafness and how they can help their child, including how to communicate with him. It would also include pre-school education for the deaf child, which is not readily available to many, many deaf infants and young children throughout the country.

These findings offer convincing evidence in favor of the use of total communication in family interaction as well as in elementary school. Oral communication methods have been used with young deaf children in the home and in elementary schools for many years. The large numbers of deaf people who are either severely handicapped vocationally or in terms of their communication skills give ample evidence that we have fallen short. Perhaps total communication from an early age will be the answer we are seeking for the severely handicapped deaf person.

Dormitory or residence hall living has been one of the most neglected areas in the education of the deaf. Certainly no one giving the matter serious thought can question the vital contribution dormitory living can make in fostering independence in the deaf child. Dormitory living replaces normal family life for about nine months of the year. The child's deafness along with this frequent absence from home in most cases make the other three months of the year less than normal. The dormitory thus is given the awesome task of providing the deaf child with the experiences and opportunities required for the development of attitudes, skills, and knowledge required for later adult living. Yet, in most schools dormitory life is regimented in nature, offering the child little opportunity for exploration, trial and error learning, and carrying out various responsibilities later required of him as an adult. In too many cases this was amply demonstrated by the subjects at the Hot Springs Center, who exhibited unusually dependent behavior. Their use of leisure time in a constructive manner was an especially weak area, leading me to

speculate on what they would be doing with their spare time throughout the years of their adulthood.

The foregoing suggest that each elementary school should attempt to develop dormitory programs, designed to foster the development of attitudes, skills, and knowledge that will enable the deaf child to grow into a fully responsible individual. Provisions should be included for teaching the child hobbies and recreational activities he can pursue during adolescence and adulthood.

Secondary Education

In addition to carrying the heavy responsibility of providing a strong academic program, secondary schools for deaf youth carry the burden--- perhaps at times an unrecognized one---of providing the deaf adolescent with information and problem solving skills he needs to achieve a successful adjustment in adulthood. There appears to be a serious need for increased efforts in counseling and guidance activities that provide experience in living independently, and opportunities for independent behavior.

In the past the deaf graduate had relatively few choices open to him after leaving school. It was either Gallaudet College, a local trade school, or a job. Today, the young deaf man and woman have an almost bewildering range of opportunities before them. In addition to the three mentioned, they have available to them the National Technical Institute for the Deaf, three regional vocational-technical schools for the deaf, San Fernando Valley State College, a host of junior colleges offering training to the deaf, the Hot Springs Rehabilitation Center, and many others, including the Model Secondary School for the Deaf. On what basis are they to make their choice? Who is going to inform them of all these opportunities?

Another area of need concerns community involvement and participation. How many schools provide opportunities for deaf staff members and deaf laymen to meet informally with the students to talk about child raising, dealing with doctors and lawyers, getting along with the neighbors, handling personal emergencies such as an accident or serious illness? How many deaf children and youth fully understand what their deafness means, why it is difficult for them to speak normally and how they can improve their speech? Why other people do not always understand how to relate to them? The Junior National Association of the Deaf is playing a very important role in helping to fill this need, but there is great need for much more effort. Teachers, as well as dormitory personnel, must go beyond the traditional role of academician with their deaf students but, unfortunately, there are many teachers and houseparents of deaf children who have no idea what life as a deaf adult is like. Such teachers should feel an ethical obligation to interact socially with deaf adults and learn as much as they can about their lives, their problems, and how they solve their problems. If we can but remember that most parents have very little knowledge of deafness and have had little interaction with deaf adults, we can better appreciate the importance of the teacher.

A growing number of schools have special programs for their multiply

handicapped deaf children. An example of one of the better such programs is that at the California School for the Deaf in Riverside. There, teachers are given special training in working with their students and use teaching methods based upon principles of behavior modification. It would be ideal if each school for the deaf would establish a similar program, for in that manner multiply handicapped deaf children would be able to obtain greater benefit from their education and would achieve a higher degree of readiness for subsequent vocational training.

Post-Secondary Education

At the present time there are very few post-secondary training opportunities for severely handicapped deaf youth. The Hot Springs Rehabilitation Center offers perhaps the most comprehensive program, although there are others less comprehensive scattered throughout the country. These programs are helping to fill the void in training opportunities for low achievers, but the limitations previously mentioned in relation to the Hot Springs program are common to all. Existing post-secondary training centers such as Gallaudet, NTID, the three regional vocational-technical schools, and some of the junior college programs serve some multiply handicapped deaf youth who have high motivation and relatively strong communication skills, but students such as those served at Hot Springs would not be able to function in these centers.

The unique combination of services required to prepare the severely handicapped deaf youth for gainful employment can perhaps best be met in a rehabilitation center designed specifically for them. The high attrition rate at Hot Springs (55%) can be expected to be duplicated at other ongoing comprehensive centers because of the communication and behavioral problems involved. However, a facility designed to provide the types of services these individuals need, staffed by personnel who have been trained to work with their particular problems and determined not to let them fail, can conceivably succeed to the point where the attrition rate approximates that of other schools.

A special rehabilitation facility for severely handicapped deaf people should provide a comprehensive range of services. Included should be medical services, physical and occupational therapy, vocational and psychological evaluation, counseling and guidance, personal adjustment evaluation and training, work adjustment evaluation and training, supervised and independent living facilities, recreational and physical education activities, instruction in hobbies and leisure time activities, vocational training in areas suitable for the skills and abilities of the students, and job placement provisions. The facility should have an active case finding program and should be active in publicizing the assets of deaf people. There should be an instructional media development component, and a research staff. Cooperative agreements should be developed with appropriate universities in the training of personnel to work with severely handicapped deaf people. The development of communication and interpersonal skills should be a basic objective of the center.

At the present time a bill is before the U.S. House of Representatives to provide for authorization and funding for such a center. This bill, H.R. 5610, was introduced recently by Rep. Wilbur Mills, (D) Ark. Hopefully, educators and rehabilitation workers throughout the country will become active in pressing for the passage of this crucial legislation. In

view of the large numbers of low achieving deaf people leaving secondary schools each year---approximately 2,000, according to one estimate---the time for such a facility is now.

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Rehabilitation of Severely Handicapped Deaf People

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The recently passed Rehabilitation Act of 1973 expresses the desire of the U.S. Congress for more and better services to severely handicapped persons. This change in legislative emphasis has slowly evolved over the half century since the inception of the vocational rehabilitation program in 1920, and it establishes another important milestone in our social welfare history.

Terminology

How does the new law (Rehabilitation Act of 1973) define severely handicapped? Originally, the House of Representatives proposed that a severely handicapped individual be "(1) under a physical or mental disability so severe that it limits substantially his ability to function in his family and community as one without such serious disability may be expected to function, and (2) who, with the assistance of comprehensive rehabilitation services, can reasonably be expected to improve substantially his ability to live independently and function normally in his family and community."¹

In the compromise bill finally enacted, the definition was altered to "a disability which requires multiple services over an extended period of time resulting from blindness, cancer, cerebral palsy, cystic fibrosis, deafness, heart disease, hemiplegia, respiratory or pulmonary dysfunction, mental retardation, multiple sclerosis, muscular dystrophy, neurological disorders (including stroke and epilepsy), paraplegia, quadraplegia, and other spinal cord conditions, renal failure, and any other disability specified by the Commissioner in regulations he shall prescribe." (Rehabilitation Act of 1973)

This latter wording emphasizes disability categories, but it provides two criteria for the determination of severity: (a) multiple services are required and (b) they are required for a long time. These two concepts could be defined operationally. For the time being, however, no such regulations have been promulgated.

We can appreciate better the complexities underlying the concept of severe handicap by recalling some past terms which may be synonymous with it or, at least, near relatives to it:

Atypical, Illiterate, Low-achieving, Multiply handicapped, Nonfeasible for vocational rehabilitation, Seriously disadvantaged, Underachieving, Undereducated, and labels for combinations of disabilities: Cerebral palsied and deaf, Emotionally disturbed and deaf, Mentally retarded and deaf, etc.

¹Conference Report on H.R. 8395. Congressional Record, 92nd Congress, Second Session, October 14, 1972.

No wonder that Stewart has indicted "vague nomenclature" as one of the central obstacles that impede our work with severely handicapped deaf people (Stewart, 1971.) He urges that more attention be given to the sociocultural variables and less to the physical disabilities. The recent report of the Institute on Rehabilitation Services (Zawada, 1973) similarly concludes that physical conditions alone can be over-emphasized. Stressing the value of maintaining the distinction between handicap and disability, the report arrives at a definition which implicitly combines the evaluation of the medical, psychological, sociocultural and vocational factors: "A person is severely handicapped "who is so specifically limited as to prevent him from engaging in vocational endeavors, without the provision of intensive and extensive rehabilitative services".²

The common thread running through the definitions is the necessity of services beyond what is usually provided rehabilitation clients, both in nature and extent of services, in order to attain a satisfactory life adjustment. The focus is on what to do, though obviously not specifically. Underlying each of the concepts is a dynamic attitude: an individual is severely handicapped until rehabilitation. As a guiding philosophy for those working in the field, it is excellent. Its breadth---encompassing persons with multiple physical and mental disabilities, those who are under-educated, and those who are culturally disadvantaged---satisfies most educators and rehabilitators. Furthermore, two minor pitfalls are avoided.

Some pseudo-sophisticated practitioners state that everybody is handicapped. In support of this contention they point to their own shortness, stoutness or need for glasses, someone else's inability to master German, and another person's chronic indigestion. Whatever they hope to gain by these silly arguments they only succeed in attacking the concept of a handicap, for if everyone is handicapped then the notion of a handicap is meaningless; it conveys no distinction.

Similarly, ethnic group membership alone should not be a sufficient condition for inclusion in the handicapped category. Being Spanish-speaking or black or American Indian puts one at a social disadvantage. But a member of a minority group is not by that fact alone handicapped. To say otherwise would attenuate the usefulness of the term in rehabilitation.

Population Estimates

Defining severely handicapped in a nonspecific, /dynamic way aids rehabilitation counseling but nearly incapacitates the morbidity statistician! How can you estimate the severely handicapped population when identification of a group member depends upon indefinite and fluctuating criteria? Admittedly, any calculation of the size of the severely handicapped deaf population will yield only a rough approximation. But let us attempt to picture the magnitude of the problem.

²Adam Zawada. Rehabilitation of the Severely Disabled. Institute, West Virginia: Research & Training Center, 1973, p. 8.

An excellent source of data is provided by the Annual Survey of Hearing Impaired Children and Youth (Rawlings and Gentile, 1970; Rawlings, 1971; Rawlings, 1973.) In three previous years the Annual Survey requested the participating schools to indicate which deaf students had an additional educationally handicapping condition. As Table I illustrates, the rates are fairly stable. About 400 of every 1,000 students are reported to have a handicap in addition to deafness. Emotional and behavioral problems account for approximately one-fourth and mental retardation about one-fifth of the total handicaps. Also note that between 68 and 72 per 1,000 students have more than one handicapping condition in addition to deafness. Granting the imprecise nature of the data, the overall effect is sobering. Educators believe that nearly 40 percent of their deaf students are multiply handicapped; i.e., have an additional disability which interferes with the students' education. Recall that these figures apply only to those in educational programs and not to those in institutions for the mentally retarded or to those too severely disabled to attend school.

How does the adult data compare? The Metropolitan Washington, D.C. survey in 1962 (Schein, 1968) found 9 percent of the adults in that area had a physical or mental disability in addition to deafness and 1 percent had two or more additional disabilities. Excluded from the survey were those deaf persons residing in institutions, so the overall 10 percent figure likely underestimates multiple disabilities, though it is depressingly large.

The National Census of the Deaf Population (Schein and Delk, 1973) obtained a far higher rate in 1972. one-third of all respondents indicated they had one or more disabilities.³ Nonwhite deaf persons, very sparsely represented in the Washington Survey, had a significantly greater proportion of additional disabilities than the white deaf sample, about 43 percent versus 32 percent. The differences for race were consistent by sex, though generally females indicated a somewhat higher rate for additional disabilities than males. Again, it must be noted that these figures are for the noninstitutionalized population.

One more insight can be gathered from the National Health Survey. In the 1962-63 special study of hearing impairment, 5.4 percent of persons with binaural hearing impairments stated they also had a severe visual impairment---were unable to read ordinary newspaper even when wearing glasses (Gentile, Schein, and Haase, 1967.) This rate rose 6.2 percent for those who were deaf; 10.5 percent also specified other difficulties seeing, bringing visual impairments to a total of 16.7 percent among the deaf respondents.

Now these studies deal with multiple disabilities, not handicaps. Furthermore, we have not considered information about literacy rates and other measures of academic attainment which would assist us in identifying the undereducated deaf population. Still, we can see that the probable number of severely handicapped deaf persons is large.

³Jerome Schein and Marcus Delk. The National Census of the Deaf Population. Silver Spring, Maryland: National Association of the Deaf, 1973, in press.

Table 1

Additional Educationally Handicapping Conditions
Per Thousand Deaf Students by Years
and Type of Disability: 1968-71

Type of Handicap	School Years		
	1968-69 (N=21,130)	1969-70 (N=29,131)	1970-71 (N=34,795)
All Handicaps	419.8	419.6	392.6
Behavioral/Emotional Problems	124.3	129.1	95.9
Brain Damage	*	5.3	4.8
Cerebral Palsy	33.5	33.1	32.3
Cleft Lip/Palate	7.2	6.5	6.2
Epilepsy	*	5.7	6.5
Heart Disorders	8.8	13.9	21.6
Learning Disabilities	*	31.2	26.2
Mental Retardation	80.4	71.5	70.1
Orthopedic Disorders	*	6.6	7.2
Perceptual-Motor Disorders	55.3	54.5	54.2
Severe Visual	41.8	45.0	48.8
Other	68.3	17.2	18.9

* Included under "Other"

Source: Rawlings and Gentile, 1970; Rawlings, 1971; Rawlings, 1973.

The reasoning underlying that assertion is that a second disability does not add to a deaf person's problems, it multiplies them. Dependent on his eyes for information about the world around him, a deaf person is often handicapped by a visual impairment which may be only mildly disabling to a person who can hear. Even a mild heart attack can create serious difficulties in getting proper medical care and in making a vocational adjustment. Certainly low academic achievement will have more grave consequences for a deaf person than for others. Thus it is reasonable to assume that most multiply disabled deaf individuals are multiply handicapped.

Another important factor is the limited rehabilitation facilities for deaf persons. For example, at present there are only five inpatient psychiatric centers specifically for deaf persons. Recalling that emotional and behavioral problems led the list of additional educational problems among deaf students (see above), one must presume that a large number of deaf persons in need of psychiatric treatment are doing without it. They fall into the handicapped category, because the means for alleviating their disabilities are not available.

With this reasoning, we can attempt some numerical depiction of the severely handicapped deaf population. The preceding studies lead to the likelihood that from 20 to 40 percent of deaf persons have an additional disability, ranging from asthma to visual impairment.

If we define deafness as the inability to hear and understand speech (Schein and Delk, 1973) then we expect about 873 deaf persons per 100,000. That figure will seem very high, if you are accustomed to calling "deaf" only those whose hearing loss occurred early in life. The National Census of the Deaf Population coined the term "prevocationally deaf" to refer to persons whose deafness occurred before 19 years of age. The prevalence rate for prevocational deafness is 202 per 100,000. Returning to the larger group of deaf persons--those whose loss occurred at any age--the estimate for severe disability would range from 175 to 350 per 100,000 persons. Applied to the adult population of the United States between 18 and 65 years of age, these rates lead to estimates of from 188 to 377 thousand multiply disabled deaf persons.

You may regard most multiply disabled deaf persons as severely handicapped; although at least some of them have been rehabilitated. It is apparent that whatever assumptions we choose, a very sizable number of deaf persons are severely handicapped. Again, a more precise estimate must await greater precision of definition.

Projected Trends

What about the future? In 1972, at the request of Gallaudet College, I prepared estimates of the future deaf postsecondary population. The details are available in "Analysis of factors affecting undergraduate enrollment at Gallaudet College" in Program Master Plan Summary, July, 1973, from Gallaudet College. Table 2 shows the projected number of deaf persons 19 years of age for each year from 1972 to 1990

Table 2

Projected Distribution of Nineteen-Year-Old Deaf Population by
Most Suitable Postsecondary Educational Placement: 1972-1990

<u>Year</u>	<u>Postsecondary Educational Placement</u>			
	<u>ALL</u>	<u>COLLEGE</u>	<u>TECHNICAL</u>	<u>COMPREHENSIVE</u>
1972	7734	619	4,640	2,475
1973	7938	635	4,763	2,540
1974	8070	646	4,842	2,582
1975	8172	654	4,903	2,615
1976	8494	934	5,521	2,039
1977	8452	930	5,494	2,028
1978	8458	931	5,498	2,029
1979	8358	919	5,433	2,006
1980	8428	927	5,478	2,023
1981	8252	1238	5,694	1,320
1982	8138	1221	5,615	1,302
1983	7982	1197	5,508	1,277
1984	7626	1144	5,262	1,220
1985	7244	1087	4,998	1,159
1986	7034	1477	4,854	703
1987	6858	1440	4,732	686
1988	7198	1512	4,967	719
1989	7022	1475	4,845	702
1990	7582	1592	5,232	758

Under the heading "All" are the total numbers of 19-year-old deaf persons. Under "College" are those who would qualify for entrance to higher education. Those under "Technical" would qualify for admittance to a vocational-technical training program. The last column, labelled "Comprehensive", contains the estimated numbers in need of a comprehensive rehabilitation facility---the severely handicapped group.

These projections are based on optimistic assumptions. These assumptions are discussed at length in the original report, but a listing will give some idea of the basis for the expressed optimism:

Early detection of loss,
Early educational intervention,
Curriculum changes in elementary education,
Curriculum changes in secondary education,
Continued programs of personnel development,
Continuing research to improve education.

Is optimism justified? Here and there, I have seen some indications that a decade of educational innovation and government stimulation have been reflected in improvement in deaf student's academic achievement. However, such evidence is tentative, and many factors could intrude to reverse the trends.

Note, however, that even these sanguine predictions point to more than 2,000 19-year-old students per year who will need intensive and extensive services through 1980. These projections are only for one age group, in order to clarify the trends. Education and rehabilitation obviously must contend with all ages. But even looking at the one age group, do we presently have facilities for the 2,500 deaf persons who will be 19 years old in 1974? To my knowledge, we do not have adequate facilities for the rehabilitation of half that number of severely handicapped deaf persons regardless of age.

Politics of Numbers

Having just provided some figures, I would urge that you consider the "politics of numbers." Perhaps it is our democratic tradition that leads to the heavy weight we place on numbers in making many judgments about providing funds for programs. I would distinguish between numbers needed for planning services and numbers used to assign priorities. I have no quarrel with the former, but grave doubts about the latter.

Let me illustrate with a recent incident. I received a long-distance call from a young man in a major city. He needed to know at once how many deaf persons lived in that city, because he was having difficulty convincing the officials there of the need for an emergency TTY service. When I gave him the estimate of the number of persons in that city who could not use the telephone, he was ecstatic, because deafness without regard to age at onset is 5 to 6 times greater than deafness of early onset.

"Gee, that's wonderful," he said. "I was afraid it wouldn't be big enough to sell!"

My reaction, unexpressed, was somewhat irrational: I was angry. I felt the census data we worked so hard to gather was being misused. Deaf people should have a service because they need it, not because they are numerous.

I think if we try to make a case for educational or rehabilitation services on the basis of numbers alone then severely handicapped people will not receive adequate support. Is it possible to make the case on the basis of necessity? Certainly, it has been at least partially that way through the brief history of rehabilitation in the United States. Compare the number of visually impaired to hearing impaired persons rehabilitated, for example. Table 3 shows the figures for these two impairments in 1969; the prevalence data are from National Health Survey. Despite the fact that there are almost 50 percent more persons with hearing impairments, the number rehabilitated is exactly reversed: 50 percent more visually than hearing impaired clients rehabilitated.

Table 3

Comparison of VR Closures for Visually and Hearing Impaired Clients to Prevalence of Visual and Hearing Impairments in the Civilian Noninstitutionalized Population

<u>Impairment</u>	<u>Cases Closed</u> ^a	<u>Prevalence</u> ^b	<u>Closures Per Million Impaired Persons</u>
Visual	20,516	5,700,000	3,599
Hearing	12,769	8,500,000	1,502

(a) FY1970

(b) FY1965

By this comparison I do not wish to imply that too much money is devoted to services for blind people. Not at all. What I would like to point out is that resources are apparently not allocated solely on the basis of numbers of people. More people suffer from the common cold than any other affliction, yet there is no National Institute of Colds.

We need far more data on severely handicapped deaf people so we can plan properly for their education and rehabilitation. But we do not need overinflated estimates to justify providing for them.

This thought was far better expressed by an article in the last issue of the Journal of Rehabilitation---an article by one of the most distinguished figures in rehabilitation, Mr. Craig Mills. Expressing his philosophical orientation, Mr. Mills concludes, "...both the rehabilitation movement and the citizens of this country could say together, we believe that the dignity of man is his finest possession."⁴

Those are wise words to guide our planning for and practice with severely handicapped deaf persons.

⁴Craig Mills. What's in a name? Journal of Rehabilitation, 40, 1974, p. 22.

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