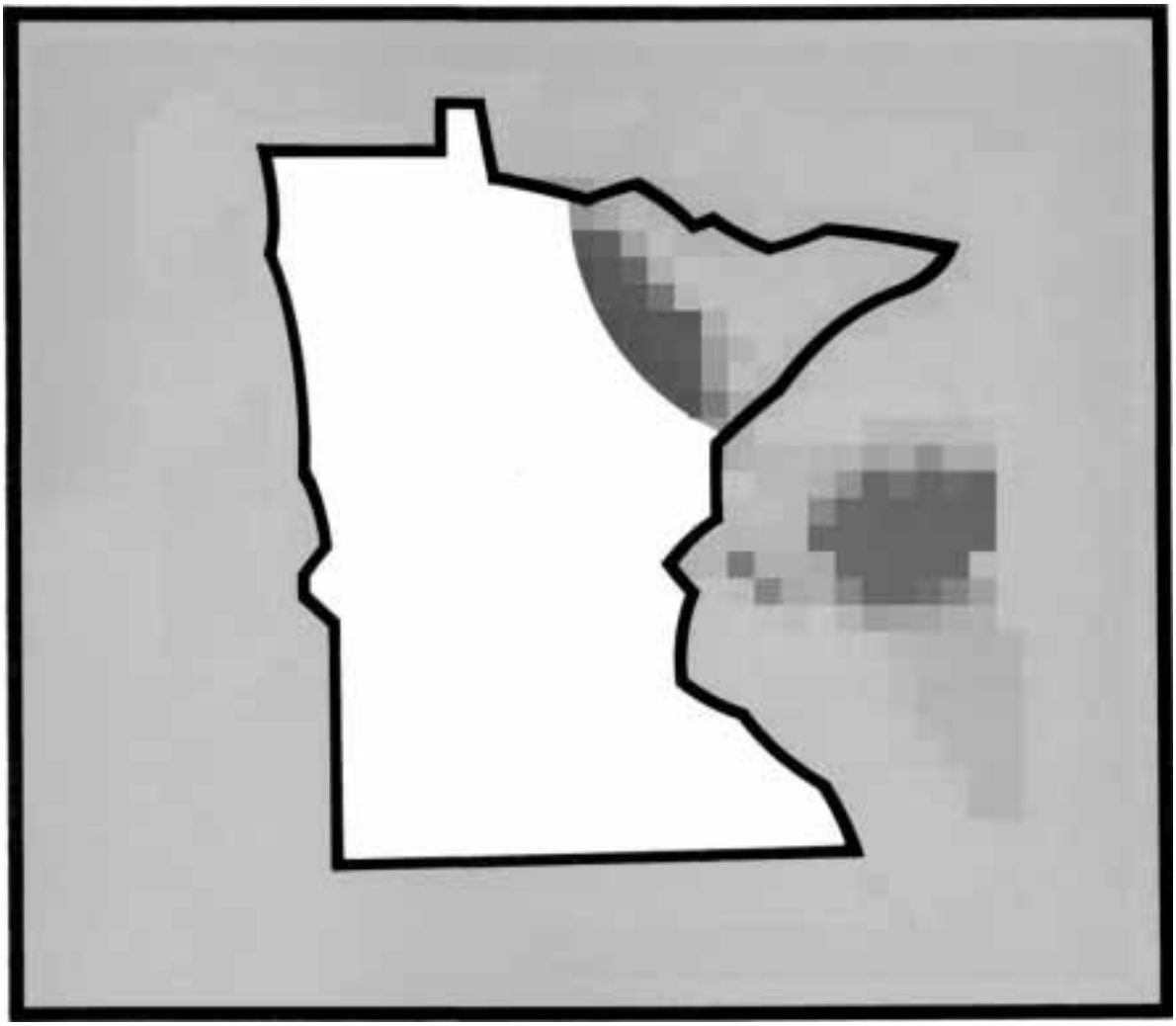

SPECIAL EDUCATION PROGRAM NEEDS

NORTHEAST MINNESOTA

APRIL 1970

CONSULTANTS IN EDUCATION

EDUCATIONAL MANAGEMENT SERVICES, INC.

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A STUDY OF HANDICAPPED CHILDREN AND THE SPECIAL EDUCATION PROGRAM NEEDS IN NORTHEAST MINNESOTA

THIS STUDY WAS CONDUCTED
WITH FUNDS - TITLE VI - ESEA

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BACKGROUND AND SUMMARY OF THE STUDY

Introduction

This study was authorized by the Minnesota State Department of Education and was conducted with funds authorized under Title VI of ESEA. The central focus of the study was to assess the capability of the schools and to recommend models for improving and extending special educational resources to children of Northeastern Minnesota who reside in Governors Planning Area B.

This area of the state includes many thousands of square miles, some 50 public and private schools systems, and approximately 100,000 children. Geographically this is a scenic section of the state with forests, beautiful lakes and rolling countryside. However, for educational planning and especially for organizing services for children who have handicaps or who do not learn by regular educational techniques, these geographic advantages become aversive factors. Some of these factors are related to the vast transportation distances that are involved in getting children to schools or in the case of a handicapped child to a specialized educational center. The same distance problem hinders the development of consultative services between schools and in-service training programs for personnel.

Moreover, this part of the state shares with many other sections, sparsely populated areas, the problem of a declining population, and a consequent lowering of financial resources to support schools. Too frequently when this occurs, new programs are postponed and the old programs that served a different population are maintained even though they are not suitable for the new conditions.

Northeast Minnesota has some unique problems that are historical in their origin. Just a few decades ago the school buildings and services offered in Northeast Minnesota were superior to any in the state. The financial resource derived from the mining industry allowed each small community to develop high quality facilities and extensive programs. This recent past condition encouraged a sense of independence within many of the small communities and an unwillingness or a lack of a perceived need to enter into comprehensive joint ventures with neighboring towns. Consequently, attitudes towards services that schools could have independently afforded in another era are undergoing change in respect to current conditions. This is evident in the support and cooperation given by school administrators and other personnel to this study.

In an attempt to specifically delineate the need for special education programs in Northeast Minnesota this study examined

four essential aspects to programming for handicapped children. They were:

(1) The identification and incidence of handicapped children. For this component, records of state agencies were searched and field workers collected data from schools, organizations, and individuals in the study area.

(2) An analysis of the educational needs of handicapped children. This was done by studying the individual school records of approximately 8,000 children. Also, existing programs and services for handicapped children in this area were reviewed. This analysis, along with data on the number of handicapped children within each school district, provided information upon which to base judgments of need.

(3) An analysis of the means and organizational patterns by which smaller size school districts may organize to provide appropriate levels and kinds of service to all children needing special educational programs. This required data from the other study components as well as an analysis of highway routes, natural trade centers, school cooperative units organized for other purposes, space availability, personnel, and the role of other agencies. Important consideration

was given to patterns for administrative organization found in other states and those presently emerging in Minnesota.

(4) A design for a regional service system for supportive assistance to the total planning area. Designing this model of a service system implies that there are some problems for special education that can only be approached on a regional level. Data needed for this system relates to state wide plans of the Minnesota State Department of Education Special Education Section as well as Northeast Minnesota.

Summary of Major Recommendations of the Study

1. An Intermediate Special Education District be Organized.
2. A Northeast Minnesota Regional Resource System be Established.
3. Three Inter district Special Education Cooperatives be Formed.
4. A Study for the Establishment of Comprehensive Special Education Services for Cook, Lake and Koochiching Counties be Initiated.
5. The Duluth Special Education Program be Developed as a Center for Low Incidence and Severely Handicapped Children.

6. Special Public School Training Centers be Established for Trainable Mentally Retarded Children.

1. An Intermediate Special Education District be Organized

This study recommends that an effort be made to initiate legislation for the establishment of an intermediate special education district which would include all school districts located in St. Louis, Cook, Lake, Carlton, Itasca and Koochiching counties. The study group believes that the difficulties of developing comprehensive and quality special education programs for Northeast Minnesota requires a regional approach. Leadership personnel, supportive staff, programs, and media could be available through such an organization.

2. A Northeast Minnesota Regional Resource System be Established

It is recommended that a regional resource system be established to serve all of Northeast Minnesota.

This study recommends that a regional resource system with satellite centers be established that would serve all school districts in Northeast Minnesota.

Many services for children with special education needs are not economically or educationally feasible on a single school district or even a group school district basis. This is

particularly true when programs for children with low incidence handicapping conditions are considered. For instance, there are a number of blind and partially sighted children in the Northeast Minnesota area. Naturally, they are not grouped in a single school district or community. If these children are to be educated in programs within the school districts in this part of the state, special resource centers, itinerant teachers and regular class teaching stations will have to be organized and supported. This in turn requires a specialized leadership person who can implement these programs. This is one type of special consultant who could be a part of a team of specialists working out of a regional resource center. Another service that could be available through a regional resource system is a prescriptive instruction and materials center. In practice, a child who was not learning through regular classroom instruction and materials would be referred by his classroom teacher to the center for an evaluation. The center would provide a specific and detailed educational appraisal and make recommendations for instructional methods and teaching materials that would be most effective with this particular child. The child's specific educational difficulties would not be determined solely by some global measure such as an intelligence test or a general achievement test. Materials geared to his difficulties in learning would be made available to his regular classroom teacher. In addition, his teacher would receive

in-service training and consultative help on the use of such materials.

This center could also serve the Northeast area of the state by providing a centralized location for complete records on all handicapped children. Too frequently, children with special problems are known to a number of agencies but the right services are not provided at the proper time in the child's life. There needs to be some form of overall coordination of this type of information before children with various handicapping conditions can be ensured adequate provision of services.

3. Three Inter district Special Education Cooperatives be Formed

It is recommended that, initially, three inter district cooperative be formed. These would not duplicate the services nor supersede the need for a larger intermediate regional approach, but would provide feasible units for administration. The three inter district cooperatives that are proposed would involve school districts found in the area designated as the (1) West Range, (2) East Range, and (3) Duluth/Cloquet.

The Duluth/Cloquet cooperative is presently operational and in its initial year. The West Range cooperative is in an advanced planning stage and could be operational during the school year 1970-71. Planning for an East Range Cooperative is still in its preliminary stages.

4. A Study for the Establishment of Comprehensive Special Education Services for Cook, Lake, and Koochiching Counties be initiated

The low general population, small enrollment size of schools, and distances between districts preclude the development of inter-district special education cooperatives to serve handicapped children in these three counties. Another service model must be developed to provide the leadership, consultant help and specialized educational programs for handicapped children in these more remote school districts.

5. The Duluth Special Education Program be developed as a Center for Low Incidence and Severely Handicapped Children

The implementation of this recommendation would establish central residential and educational programs for low incidence handicapped children in the city of Duluth with the exception of trainable mentally retarded children for whom area centers should be planned. The rationale for this recommendation is based on the fact that the Duluth Public School system is the only district in Northeast Minnesota that currently has staff and services for all low incidence handicapped children.

6. Special Public School Training Centers be established for Trainable Mentally Retarded Children.

Quality programs for trainable mentally retarded children, with only a few exceptions, are not available in Northeastern Minnesota.

CHAPTER II

PREVALENCE OF HANDICAPPING CONDITIONS IN NORTHEAST MINNESOTA

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PREVALENCE OF HANDICAPPING CONDITIONS IN NORTHEAST MINNESOTA

The primary purpose of this chapter is to present the findings of an inclusive prevalence study of handicapped children in Northeast Minnesota. In addition to reporting current numbers of handicapped children, school enrollment projections for this area of the state also are reported in Chapter III to estimate the number of handicapped children that may be expected during the years 1970 to 1980.

A common axiom in educational circles is that program planning must be antedated by comprehensive surveys and analyses of needs. Perhaps in no other area of education is the necessity to recognize the importance of this principle more apparent than in the planning of special services for handicapped children. By definition, special education serves children who cannot be educated unassisted within the context of regular education programs (Department of Special Education, 1969). This does not imply that handicapped children are not provided instruction through the regular education program. It only implies that such children require auxiliary assistance to optimize their educational attainments. Intensive study of current and future needs, therefore, must precede and assist in the development of specialized, and often expensive, educational services.

Chapters II and III of the report document the present and future special education needs of the school population in Northeast Minnesota. Based upon these analyses, the final chapter of the report discusses implications and recommendations for the development of special education services.

Characteristics of Northeast Minnesota

According to the 1960 census, the Northeastern area of Minnesota comprised approximately 84,068 square miles, and had a population of about 332,795 persons. While in 1960 this region contained only about 10 percent of the state's population, the area included approximately 20 percent of the land in the state.

Since the population density in this area of the state is low, it is anticipated that trends toward school consolidation and organization of intermediate school units will continue to increase during the next few years. Perhaps in no other area of educational service is the need for regional planning more apparent than in the area of special education and pupil personnel services. Services to handicapped children are typically expensive, requiring specialized equipment, diagnostic services, highly trained personnel, and low staff to pupil ratios. Moreover, many of the categories of handicapped children who are most in need of special education services represent only a very small fraction of the school population. To enhance the feasibility of offering effective

special education services to such pupils, it is essential that school districts consolidate and pool resources in the interest of providing quality education.

Statistics on demographic trends in Northeast Minnesota further highlight the need to consider the development and implementation of a regional service unit approach to special education services. According to recent figures, the counties in Northeast Minnesota between 1960 and 1965 registered a 1.1 percent decline in overall population. This decline compares to an average nationwide growth rate of 20 percent over the same period. The principle reason for this overall decline in population is due to the large decrease in rural non-farm residents (Hoyt & Hanson, 1967). It was interesting to note, moreover, that the largest net out-migration between 1950 and 1960 occurred in the 20 to 24 age group (Stam, 1968). Population projections for the period of 1960 to 1985 estimate a -.40 to -.68 annual rate of decline in population for this region of the state (Hoyt & Hanson, 1967). If past indicators can be used to estimate the future impact of this projection, it is likely that the largest out-migration of population in coming years will occur between the ages of 20 and 30. The implications of these data for educational planning are quite obvious: school personnel can anticipate a further decline in school populations, particularly in the rural areas and small towns.

The statistics cited above underline the need for an inclusive study of the special education needs of school children in Northeast Minnesota. Without a comprehensive assessment of current needs, it would be difficult if not impossible to accurately project and plan quality special education services for this small minority of the school population. The first section of this report describes the findings of an inclusive prevalence study of handicapped children in this area of the state. The number and percentage of children reported in each major area of handicap were ascertained in a thorough survey of this region between November 1969 and February 1970.

Consistent with the realization that regional units would be required to provide optimum special education services in Northeast Minnesota, the Study Team decided to group individual school districts into larger geographical units. Therefore, numbers and percentages of handicapped children are reported within four different regional units rather than for each separate school district. These four regions were designated: Cook and Lake (including the school districts in Cook and Lake Counties), Duluth/Cloquet (including parts of St. Louis and Carlton Counties), East Range (including parts of St. Louis and a small portion of Koochiching County), and West Range (including Itasca and a part of St. Louis County). An attempt was made to group school districts into regional areas which might serve as future special education

inter district cooperative units. Figure I displays a map of Northeast Minnesota in which these four regional areas have been designated. A listing of the individual school districts in each of these regions, including their location by county and pupil populations, is contained in Table I.

Method

All data collected during the course of the study were classified into a basic schema developed from a review of existing literature on exceptional children. This classification schema comprised 12 major areas of handicapping conditions, including:

(1) Mental Handicap: Trainable and Severely Mentally Retarded
(2) Mental Handicap: Educable Mentally Retarded
(3) Physical Handicap: Orthopedically Impaired
(4) Physical Handicap: Health Impaired
(5) Speech Impaired
(6) Hearing Handicap: Deaf
(7) Hearing Handicap: Hard of Hearing
(8) Visual Handicap: Blind
(9) Visual Handicap: Partially Sighted
(10) Emotionally Disturbed and/or Socially Maladjusted

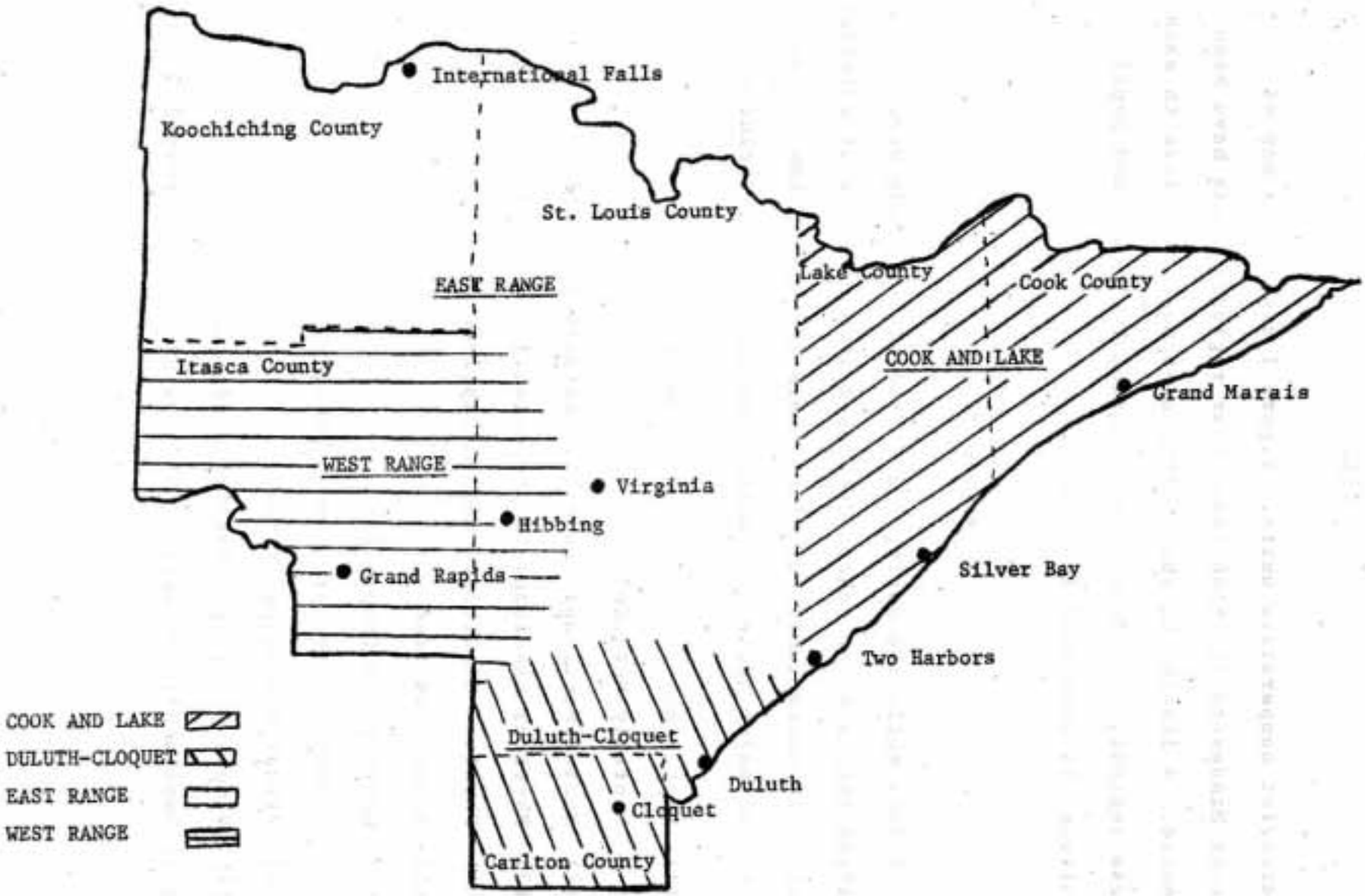

Figure 1. Map of special education regional units in Northeast Minnesota.

TABLE 1

School Districts and Pupil Population in the Four Regional Special Education Districts

School Districts	County	Total School Population
Cook and Lake		
Grand Marais	Cook	997
Two Harbors	Lake	4,218
Total		5,215
Duluth/Cloquet		
Barnum	Carlton	826
Carlton	Carlton	966
Cloquet	Carlton	3,744
Cromwell	Carlton St.	381
Duluth	Louis St.	24,871
Floodwood	Louis St.	560
Hermantown	Louis	2,030
Kalevala	Carlton St.	81
Lakewood	Louis	259
Moose Lake	Carlton St.	874
Proctor	Louis	2,898
Thompson Township	Carlton	1,181
Wrenshall St.	Carlton	370
Louis County Unorganized[a]	St. Louis	1,813
Total East		40,854
Range		
Aurora	St. Louis	2,469
Babbitt	St. Louis	1,436
Biwabik	St . Louis	813
Ely	St. Louis	1,701
Eveleth	St. Louis	2,121
Gilbert	St. Louis	990
International Falls	Koochiching	3,514
Little Fork	Koochiching	585
Mountain Iron	St. Louis	971
Nett Lake	St. Louis	103
South Koochiching-Ralny River	Koochiching	500
Tower-Soudan	St. Louis	612
Virginia St.	St. Louis	3,372
Louis County Unorganized	St. Louis	1,813
Total		21,000

TABLE 1 (cont'd)

School Districts and Pupil Population in the Four Regional Special Education Districts

School Districts	County	Total School Population
West Range		
Buhl	St. Louis	515
Chisholm	St. Louis	1,706
Coleraine	Itasca	2,304
Deer River	Itasca	1,208
Grand Rapids	Itasca	5,582
Hibbing	St, Louis	5,956
Nashwauk-Keewatin	Itasca	1,330
St. Louis County Unorganized	St. Louis	1,813
Total		20,414
GRAND TOTAL		87,483

Total St. Louis County Unorganized school enrollment was divided equally among the East Range, West Range and Duluth/Cloquet units

(11) Special Learning Difficulties

(12) Multiple Handicaps (presence of two or more severe handicaps of major educational significance, e.g., deaf-mentally retarded)

The specific defining attributes of each of the above handicaps appear later in the text.

Subsequent sections of the report present data on the number of handicapped children in each of the above categories except "multiple handicaps." This category of exceptionality was dropped from the study because a number of difficulties were encountered in collecting reliable data on these pupils. The study not only yielded a very snail number of children with this designation, but analyses indicated that many multiply handicapped children were frequently classified only according to the major or most educationally significant handicapped. Several cases, for example, were uncovered of children who exhibited both mental retardation and orthopedic impairments. These children were frequently classified as either retarded or orthopedically impaired, depending upon the pattern and severity of the two handicaps. These findings point out the complexity involved in making precise differential diagnoses among this small segment of the school population. Further exploration of the service needs of multiply handicapped children should be initiated through a carefully

designed sampling study employing a multi-disciplinary team capable of making accurate differential diagnoses.

The survey used several sources of information to arrive at estimates of handicapped children in Northeast Minnesota. These sources included (1) lists of children collected by various state government agencies, (2) public school reports to the Special Education Section of the State Department of Education, (3) referrals to the Study Team from local professional people and service agencies (including doctors, nurses, etc.), (4) standardized intelligence and achievement test data obtained from selected school systems with organized testing programs, and (5) pupil projections of the number of handicapped children by region based upon school enrollments between 1960 and 1970. Each of the primary sources of data included in the study is briefly described below.

State services. Lists of handicapped children with significant educational difficulties were assembled from the records of several state agencies. The offices contacted in this phase of the study included various units in the Special Education Section of the State Department of Education, State Services for the Blind (Department of Public Welfare), State Services for the Deaf (Department of Public Welfare), Crippled Children's Services (Department of Public Welfare), and the Minnesota Department of Corrections.

Public school reports. State of Minnesota education directives require local school districts to submit names of all pupils receiving special education state services to the Commissioner of Education for approval (Department of Education, 1966). These local school district reports of children receiving special education services during the 1969-70 school year constituted another major source of data to determine the number of handicapped children in this region of the state.

Local referrals from agencies and professional people. One of the major purposes in conducting a prevalence survey is to determine the number of children who may not be identified and/or served under existing programs. To identify pupils who may have been overlooked by the above procedures, the Study Team developed a Special Education Survey Form (see Appendix A).

Support for the voluntary reporting approach to surveying the prevalence of handicapped children is found in a study conducted by Wishik (1956). This survey employed both voluntary reporting and a diagnostic sampling study of two communities in Georgia. Presumptive diagnoses attained through voluntary reporting were confirmed by specialists representing several different professional disciplines. The accuracy of the voluntary reporting method was quite high, yielding an accuracy rating of 63.4 percent. On the basis of these findings, Wishik concluded "that voluntary

reporting, even lay reporting, is an important case-finding device that should be given serious consideration..." (p. 199). Wishik's findings did indicate, however, that a major shortcoming of this approach was that it gave conservative estimates of the actual number of handicapped children represented in the population.

The survey form was developed by identifying, for the most part, easily observable attributes of handicapped children as described in various professional publications in special education, Several introductory texts on exceptional children, standard behavior checklists, as well as other pertinent professional literature were consulted in formulating the initial list of descriptors (Balow, 1968; Cruickshank & Johnson, 1967; Darling, 1966; Dunn, 1963; Garrison & Force, 1965; Kirk, 1962; Peterson & Quay, 1967; Telford & Sawrey, 1967). Moreover, every attempt was made to describe the selected characteristics in educational rather than medical or psychiatric terminology. Following the development of the initial list, several persons with professional competence in various handicapping conditions were requested to (1) rate the importance of the characteristics as descriptors of each type of handicap, (2) suggest any other characteristics which would improve the definition of handicap(s), and (3) critique the general procedures (instructions, etc.) employed in the form.

As a result of this initial review, the final version of the form was subdivided into two sections. The one section, entitled

"Descriptions of Handicapped Children," contained an extensive listing of characteristics to define each of the major handicaps. This form was used only to supplement the main survey instrument by providing a reasonably complete list of the distinguishing characteristics of each type of handicapping condition. The second section, entitled the "Special Education Survey Form," was employed to elicit from various agencies as well as professional and lay persons the names of handicapped children with intellectual, physical, emotional and social handicaps of educational significance.

The Special Education Survey Form was administered by two field representatives who were employed for approximately two months to canvass the communities in the northeast section of the state. The representatives were familiar with this region and had some past training in and exposure to special education. The list of major agencies contacted during this phase of the study appears in Appendix B. In addition to these agencies, a number of lay persons and professionals who were considered likely to come in contact with handicapped children were also requested to participate in completing the form.

Special Learning Disabilities Sampling Study

A special sampling study was conducted to derive prevalence estimates of special learning difficulties among the school age

children in Northeast Minnesota using standardized test scores from the Lorge-Thorndike Intelligence Tests (Lorge, Thorndike & Hagin, 1966) and the Iowa Tests of Basic Skills (Lindquist & Hieronymus, 1964). A survey of the school systems in Northeast Minnesota indicated that most of the larger districts routinely administered these tests in the third and sixth grades as part of an organized school-wide testing program. Third and sixth grade scores were considered optimal for conducting an epidemiological survey of learning difficulties. At the end of the third grade, fundamental academic skills are consolidated -- e.g., an average third grade child has typically mastered basic word recognition skills in reading and major arithmetic facts. Toward the end of the elementary school years in the sixth grade, basic academic skills are further refined and consolidated. If the child is still encountering difficulty in basic skills at this stage in his school career, he is ill equip to deal with the skill demands of subject matter presented in the junior and senior high school curriculum.

The survey used the Iowa Tests of Basic Skills as the measure of academic performance. One of the respected measures of academic proficiency, the Iowa Tests of Basic Skills contains five different sub tests, including Vocabulary, Reading Comprehension, Language Skills (spelling, capitalization, punctuation, and word usage), Work-Study Skills (map reading, reading graphs and tables,

knowledge and use of reference materials) and Arithmetic Skills (concepts and problem solving). The measure of academic achievement consisted of composite scores summed over the five sub tests.

Included in the special learning difficulties survey were the Duluth, Grand Marais and Grand Rapids school systems. A total of 2786 pupils was included in this phase of the study. Table 2 reports the number of students in these analyses by school system (city), nonverbal IQ interval, and grade level.

Two methods were employed in deriving estimates of the incidence of special learning disabilities. The first method applied an achievement expectancy formula to adjust the definition of learning disabilities to the learning potential of the pupils as measured by a standardized test of intelligence. Implicit in this conception of special learning disabilities is the assumption that the child is performing in academic areas significantly below estimated learning ability. The second method determined the prevalence of children achieving significantly below grade level, irrespective of measured intelligence. Each of these methods is discussed below.

Method I. Estimated learning potential is typically assessed through the administration of standardized tests of intelligence or listening ability. In the present survey, nonverbal scores on the Lorge-Thorndike Intelligence Tests were employed in computing

TABLE 2

Number of Pupils Included in the Special Learning Disabilities Analyses by City, IQ Level and Grade Level

City/Grade Level	Nonverbal IQ Levels								Totals
	80-89	90-99	100-109	110-119	120-129	130-139	140-149	150-159	
Duluth									
Third Grade	76	175	250	207	172	72	27	0	979
Sixth Grade	57	120	255	330	256	114	27	3	1162
Grand Marais									
Third Grade	5	15	25	15	15	0	0	0	75
Sixth Grade[a]	0	0	0	0	0	0	0	0	0
Grand Rapids									
Third Grade	27	80	75	78	31	11	0	0	302
Sixth Grade	13	32	79	102	33	9	0	0	268
TOTALS									
Third Grade	108	270	350	300	218	83	27	0	1356
Sixth Grade	70	152	334	432	289	123	27	3	1430
Total	178	422	684	732	507	206	54	3	2786

[a]Data not available.

these estimates. The selection of nonverbal IQ scores as a criterion of learning ability was based on the findings of previous studies of the intellectual characteristics of poor readers. These studies have consistently found retarded readers to perform higher on nonverbal measures of intelligence in comparison to tests requiring verbal skills (cf. Neville & Bruininks, in press). Thus, it was reasoned that selection of nonverbal scores might yield a more accurate reflection of the learning ability of children who were encountering difficulty in mastering basic school subjects.

A formula developed by Bond and Tinker (1957) was used to provide a measure of learning potential. The Bond and Tinker formula is:

Achievement Expectancy = IQ/100 x Years-in-School + 1.0

It should be pointed out that years-in-school is not synonymous with grade level since a child, unless retained, would be in school for one year less than his actual grade placement. This formula has the advantage of weighting a child's measured intelligence by the length of time he has been exposed to academic learning.

Accurate definition of special learning difficulties also requires the establishment of age specific criteria. Thus, a learning disability is commonly considered to exist when an

individual exhibits an achievement level which is below his learning potential level by one year or more in a primary grade; one and one-half years or more if in grades 4 or 5; and two years or more if in grade 6 or above (cf. Neville & Bruininks, in press). While subsequent sections of the report also present data resulting from less stringent grade discrepancies, a special learning disability was considered to exist if a child displayed a discrepancy between learning potential and attained achievement of one grade or more in grade three and at least two grades or more in grade six.

Method II. A more common approach to defining special learning disabilities is the use of a simple "grade level expectancy" criterion of achievement. This approach defines a child as learning disabled if he is performing significantly below chronological age peers. Additional prevalence estimates for special learning disabilities are presented using this grade level definition of achievement, independent of predicted learning ability. The same achievement discrepancies were used to define the presence of a learning disability -- i.e., one grade or more in grade three and at least two grades or more in grade six. The findings obtained by these two methods are contrasted and discussed later in the report.

Limitations. A number of weaknesses are inherent in the use of the above procedures to identify children with learning disabilities. A few of these limitations are discussed below:

(1) The measurement of any behavioral attribute contains a certain element of error. Testing conditions, personal motivation, and numerous other factors can intrude into the testing situation and lower the accuracy of measurement. Such errors in measurement might also reduce the accuracy, by some unknown factor, of prevalence estimates of special learning difficulties.

(2) Both approaches to defining special learning dis abilities employ an essentially "survey level" approach to diagnosis. They merely indicate that a child's academic attainments are significantly lower than his estimated learning ability based upon either intelligence test scores or current grade level. Neither the learning expectancy nor the grade level methods indicate the nature of the child's learning problem.

(3) The measures in these analyses were group measures of aptitude and achievement. Group tests are usually considered less accurate and reliable than individual measures of aptitude and achievement.

(4) The identification of learning difficulties under the achievement expectancy method employs the method of prediction. Errors of prediction, therefore, can have a significant influence upon the outcome of such analyses. Major methodological shortcomings of this approach include: the use of IQ as the major measure of achievement expectancy when correlations between intelligence and achievement test scores are less than perfect, typically ranging between .50 and .70 (cf. Neville & Bruininks, in press); the reliability of the discrepancy (difference) scores between predicted and actual achievement are lower than the test scores upon which they are based (cf. Neville & Bruininks, in press); the estimates of learning difficulties might vary by some amount simply as an artifact of the instruments employed to assess basic skills (i.e., different standardized tests might yield different prevalence rates); and the use of another predictive formula would lead to different prevalence rates.

(5) A commonly recognized statistical principle is that persons displaying extreme scores on one measure frequently exhibit a tendency to receive less extreme

scores on other measures. In the case of the achievement expectancy approach, therefore, children with high IQ scores could be expected to perform lower on the achievement measure. Conversely, low IQ children would probably tend to perform closer to the group average on academic achievement tests. Thus, the achievement expectancy approach may tend to overestimate the number of children with learning difficulties at higher IQ levels, but underestimate the actual prevalence rate at lower IQ levels.

Even after recognizing the above limitations, the Study Team believes the methods yielded reasonably accurate projections of the number of children encountering difficulty in school learning in Northeast Minnesota. However, it is quite evident that much future research will be required before complete confidence in the accuracy of incidence projections of special learning disabilities can be assured.

Pupil projections. In addition to estimating the current number of handicapped children, projections of future numbers of handicapped children were made on the basis of school enrollment figures from 1960 to 1970. Future estimates of the number of handicapped pupils for this section of the state were derived by applying prevalence rates obtained during this study (1969-70

school year) to the overall enrollment projections for the general school population. These data are reported later in Chapter III.

The reader should be cautioned against making overly strict interpretations of population projection data. It is particularly important to consider that projections of pupil populations involve errors of estimates and often fail to take, into account certain important economic and social factors which might influence the rates of population growth and decline. Moreover, employing present prevalence figures to predict the future incidence of handicapped children involves considerable risk of error. Situation factors such as disease conditions, changing trends in populations, changes in the philosophy and structure of regular education, and numerous other considerations can affect the incidence rates of handicapped children.

The essential value of making population projections in special education is to facilitate the planning and organization of future patterns of service. If incidence rates of handicapped children remain reasonably constant over the next decade, estimates are of value in projecting service needs for handicapped children in this region of the state.

Findings

Previous sections have described the procedures used to ascertain the number of handicapped children in Northeast Minnesota.

Information from a variety of sources was collated and summarized for each of the four regional units. The number of children by category of handicap (except "special learning disabilities") is summarized in Table 3. Included in Table 3 are the prevalence rates by regional district for each handicap and the nationwide estimates made by the U.S. Office of Education (USOE). Totals by handicapping condition for the entire area are also included.

Some final notes of caution should be introduced to assist the reader in evaluating data included in later sections of the report. First, it has been noted earlier that voluntary reporting procedures tend to yield conservative estimates of the prevalence of handicapped children (Wishik, 1956). The Study Team is inclined to believe, however, that the figures reported in Table 3 are reasonably accurate reflections of the special education needs among the current school population of Northeast Minnesota. For the most part, estimates obtained in the present study are slightly below those projected by the USOE. While the present study employed more rigorous procedures than those of the USOE to identify handicapped children, the actual rates probably fall somewhere between the two estimates presented in Table 3.

Second, the reader is cautioned against making an overly strict interpretation of the data presented below, since prevalence rates of handicapped children frequently vary as a function of age, regions of residence and other situational factors (e.g., disease conditions, prevailing social attitudes, etc.).

Table 3

Prevalence of Handicapped Children in Northeast Minnesota

1969-70 School Year

Region	Total School Population[a]	Number Identified	Estimated Prevalence	USOE Estimate Prevalence[b]
Cook and Lake				
Mentally Retarded - Total	5,215	65	1.25%	2.3 %
Trainable Mentally Retarded	5,215	13	.25%	.3 %
Educable Mentally Retarded	5,215	52	1.0 %	2.0 %
Physically Handicapped - Total	5,215	11	.21%	2.0 %
Orthopedically Handicapped[c]	5,215	8	.15%	1.0 %
Health Impaired	5,215	3	.06%	1.0 %
Speech Handicapped[d]	5,215	182	3.5 %	3.5 %
Hearing Impaired - Total	5,215	5	.10%	.6 %
Deaf	5,215	3	.06%	.1 %
Hard of Hearing	5,215	2	.04%	.5 %
Visually Impaired - Total	5,215	17	.33%	.09%
Blind	5,215	6	.12%	.03%
Partially Sighted	5,215	11	.21%	.06%
Emotionally Disturbed/ Socially Maladjusted	5,215	3	.06%	2.0 %
Total	5,215	283	5.45%	10.49%
Duluth/Cloquet				
Mentally Retarded - Total	40,853	584	1.43%	2.3 %
Trainable Mentally Retarded	40,853	118	.29%	.3 %
Educable Mentally Retarded	40,853	466	1.14%	2.0 %
Physically Handicapped - Total	40,853	113	.28%	2.0 %
Orthopedically Handicapped	40,853	102	.25%	1.0 %
Health Impaired	40,853	11	.03%	1.0 %
Speech Handicapped	40,853	1430	3.5 %	3.5 %
Hearing Impaired - Total	40,853	52	.12%	.6 %
Deaf	40,853	21	.05%	.1 %
Hard of Hearing	40,853	31	.07%	.5 %

Table 3 (continued)

Prevalence of Handicapped Children in Northeast Minnesota

1969-70 School Year

Region	Total School Population[a]	Number Identified	Estimated Prevalence	USOE Estimated Prevalence[b]
Duluth/Cloquet (continued)				
Visually Impaired - Total	40,853	92	.23%	.09%
Blind	40,853	36	.09%	.03%
Partially Sighted	40,853	56	.14%	.06%
Emotionally Disturbed/ Socially Maladjusted	40,853	101	.25%	2.0 %
Total	40,853	2372	5.81%	10.49%
East Range				
Mentally Retarded - Total	21,000	244	1.16%	2.3 %
Trainable Mentally Retarded	21,000	65	.31%	.3 %
Educable Mentally Retarded	21,000	179	.85%	2.0 %
Physically Handicapped - Total	21,000	118	.56%	2.0 %
Orthopedically Handicapped	21,000	72	.34%	1.0 %
Health Impaired	21,000	46	.22%	1.0 %
Speech Handicapped	21,000	735	3.5 %	3.5 %
Hearing Impaired - Total	21,000	33	.15%	.6 %
Deaf	21,000	11	.05%	.1 %
Hard of Hearing	21,000	22	.10%	.5 %
Visually Impaired - Total	21,000	98	.47%	.09%
Blind	21,000	10	.05%	.03%
Partially Sighted	21,000	88	.42%	.06%
Emotionally Disturbed/ Socially Maladjusted	21,000	27	.13%	2.0 %
Total	21,000	1255	5.97%	10.49%
West Range				
Mentally Retarded - Total	20,414	224	1.10%	2.3 %
Trainable Mentally Retarded	20,414	53	.26%	.3 %
Educable Mentally Retarded	20,414	171	.84%	2.0 %

Table 3 (continued) Prevalence of Handicapped Children in Northeast Minnesota

1969-70 School Year

Region	Total School Population[a]	Number Identified	Estimated Prevalence	USOE Estimated Prevalence[b]
West Range (continued)				
Physically Handicapped - Total	20,414	80	.39%	2.0 %
Orthopedically Handicapped	20,414	63	.31%	1.0 %
Health Impaired	20,414	17	.08%	1.0 %
Speech Handicapped	20,414	714	3.5 %	3.5 %
Hearing Impaired - Total	20,414	24	.12%	.6 %
Deaf	20,414	6	.03%	.1 %
Hard of Hearing	20,414	18	.09%	.5 %
Visually Impaired - Total	20,414	83	.40%	.09%
Blind	20,414	11	.05%	.03%
Partially Sighted	20,414	72	.35%	.06%
Emotionally Disturbed/ Socially Maladjusted	20,414	22	.11%	2.0 %
Total	20,414	1147	5.62%	10.49%
Totals				
Mentally Retarded - Total	87,483	1117	1.27%	2.3 %
Trainable Mentally Retarded	87,483	249	.28%	.3 %
Educable Mentally Retarded	87,483	868	.99%	2.0 %
Physically Handicapped - Total	87,483	322	.37%	2.0 %
Orthopedically Handicapped	87,483	245	.28%	1.0 %
Health Impaired	87,483	77	.09%	1.0 %
Speech Handicapped	87,483	3061	3.5 %	3.5 %
Hearing Impaired - Total	87,483	115	.13%	.6 %
Deaf	87,483	41	.05%	.1 %
Hard of Hearing	87,483	74	.08%	.5 %
Visually Impaired - Total	87,483	290	.33%	.09%
Blind	87,483	63	.07%	.03%
Partially Sighted	87,483	227	.26%	.06%
Emotionally Disturbed/ Socially Maladjusted	87,483	153	.17%	2.0 %

Table 3 (continued)

Prevalence of Handicapped Children in Northeast Minnesota

1969-70 School Year

Region	Total School Population[a]	Number Identified	Estimated Prevalence	USOE Estimated Prevalence[b]
Totals (continued)	87,483	505 4	5.77%	
Total	10.49%			

Based on K through 12 enrollment figure's of those school districts within each major region.

U.S. Office of Education projections, reported in L.M. Dunn, Exceptional Children in the Schools (New York: Holt, Rinehart & Winston, 1963).

'Includes some multiply handicapped children.

Data not available. The U.S. Office of Education figure was used in making projections.

Finally, it must be emphasized that the purpose of a prevalence study is to identify the number of pupils in need of special education assistance. Unfortunately, it is not possible in this type of study to determine precisely the type and pattern of special education services required. In other words, a prevalence survey is not a truly diagnostic study i.e., it is not within its purview to identify the precise pattern of service needs for individual pupils or even for pupils who have been identified as exhibiting certain handicap(s). It is entirely conceivable, for example, that a child with a particular handicap (e.g., orthopedic impairment) might need a pattern of services quite different from that required for children with a similar categorical designation. Thus, it is necessary in survey studies of this kind to classify children into gross categories which may represent at best only crude approximations of their actual educational and/or service needs.

Total Prevalence of Handicapped Children

Table 3 reveals that nearly 6.0 percent of the school aged children in Northeast Minnesota are considered to possess handicaps of educational significance. This figure compares to a USOE estimate of about 10.5 percent in the nationwide school population.

Mentally Retarded

The Manual on Terminology and Classification of the American Association on Mental Deficiency (Heber, 1961) states that

"mental retardation refers to sub average general intellectual functioning which originates during the developmental period and is associated with an impairment in adaptive behavior" (p. 3). Sub average intellectual functioning, according to the manual, is indicated by the attainment of a relatively low score on a standardized general intelligence test. Diagnosis of mental retardation, however, also requires evidence of impaired adaptive behavior in the areas of maturation, learning, and/or social adjustment. For educational purposes, a distinction is often made between educable and trainable mentally retarded children. Educable mental retardation refers to those pupils with IQ scores between approximately 50 and 80 who are encountering difficulty in learning basic school subjects. The term "trainable mentally retarded" refers to students with IQ's between approximately 30 and 50. Curricular provisions for educable and trainable pupils should be quite different even though there is a certain degree of overlap between the two groups in a number of school-related behaviors.

Trainable Mentally Retarded. The educational program for trainable mentally retarded (TMR) children attempts to develop adequacy in self-help skills, social skills, vocational skills, and leisure time interests (Rosenzweig & Long, 1960). A TMR child is generally unable to acquire rudimentary academic skills

beyond the first or second grade levels. Moreover, many of the children classified as TMR display a wide variety of concomitant handicapping conditions in addition to low general intelligence and impairment in adaptive behavior. Employment prognosis for TMR persons is typically limited to situations which permit a high degree of close supervision.

The recommended number of TMR pupils per classroom is 10; however, the number may vary from 6 to 15 depending upon factors such as age, variation of mental abilities, and amount of school experience. In order to provide a single class for students between the ages of 6 and 13, a base population of approximately 2,000 pupils is required. The low incidence of this particular handicapping condition invariably necessitates the establishment of inter district cooperative programs.

According to Table 3, 249 TMR children were identified in the Survey. This figure yields an overall prevalence estimate of 0.28 percent. The rate of 0.28 percent agrees closely with the national USOE prevalence estimate of 0.3 percent of the school population. The variation in prevalence rate appears to vary slightly from region to region, ranging from a low of 0.25 percent in Cook and Lake counties to a high of 0.31 percent in the East Range. By applying the directives of the Special Education Section of the State Department of Education (1966) to the number of children identified in the Survey, approximately 25 or more classes

would be required to adequately meet the educational and training needs of TMR pupils in Northeast Minnesota.

Educable mentally retarded. Special education programs for elementary educable mentally retarded (EMR) pupils should provide an appropriate and comprehensive approach which would include (1) training in language, numbers, and reading; (2) social development; (3) motor development and perceptual training; (4) mobility and orientation experiences; and (5) programs of parent consultation. Integration of students into regular classroom programs and activities is often advantageous as long as their specific individual needs are given consideration. The curriculum at the junior and senior high school levels should provide opportunity for both prevocational and on the job training.

The number of EMR pupils identified in Northeast Minnesota is contained in Table 3. This table indicates that 868 pupils were identified as possessing significant impairments in basic adaptive behavior skills and fell into this general level of intellectual ability. The estimated prevalence of EMR children for the total region is approximately 1.0 percent which is half the nationwide rate of 2.0 percent, as estimated by the USOE. Variations in rates among the four regions were generally slight. They range from a low of .84 in the West Range to a high of 1.14 percent in the Duluth/Cloquet area. State Special Education directives would

recommend a minimum of 58 special classrooms and/or resource rooms to accommodate this number of children (Department of Education, 1966).

A note of caution should be introduced in interpreting the above estimated rate for EMR pupils of 1.0 percent. It should be noted that the main source of referral for EMR pupils were the reports from individual school districts operating special education services under state reimbursed programs. Very few additional pupils were identified through the Special Education Survey Form, or through other sources of referral employed in the study. Therefore, it is likely that the estimate obtained in this report is quite conservative. With the establishment of a more complete array of diagnostic services, it is likely that more than 1.0 percent of the school population would be identified as requiring services appropriate to children designated as EMR. It is important to point out, however, that the number of these children who require special education services is in part a function of the adequacy of regular education services. If the regular education program permits a high degree of individualization of instruction, it is reasonable that a proportionately smaller number of these pupils would require special education services during the elementary school years.

Physically Handicapped Children designated as physically handicapped are comprised of those with orthopedic handicaps and chronic health problems. Orthopedic impairments consist for the most part of malformations and malfunctions of bones, joints, or muscles (Dunn, 1963). The term "chronic health conditions" refers to a variety of physical conditions including rheumatic fever, cardiac disorders, nephritis, hepatitis, epilepsy, allergies, diabetes, and many others.

An increasing accumulation of evidence suggests that the incidence of children with multiple physical and other disabilities is growing (Connor, 1967; Dunn, 1963). In a survey of handicapped pupils in Georgia, Wishik (1956) found one-third of the children had one disability, one-third had two, and one-third had three or more. Thus, at least two-thirds of this particular sample could be considered multiply handicapped.

While the number of non-sensory physically handicapped children has increased during the last two decades, the percentage increase in services to these children has been much lower than those reported for other areas of handicap such as the mentally retarded (Mackie, 1965). Recent and dramatic advances in both medical science and educational services have no doubt contributed substantially toward reducing the need to provide service to many physically handicapped children with mild to moderate impairments.

Coincidental with these developments, however, have been the resultant effects of improved medical procedures which have preserved the lives of many children who had formerly succumbed at an early age. Many of these children, as well as those who had been affected by major viral infections such as rubella, have contributed disproportionately to the noticeable increase in the prevalence of children with combined handicapping conditions of a more severe nature. Thus, while the overall prevalence of physically handicapped children is decreasing the incidence of children with severe, multiple impairments may be increasing. For these children, educational planning should probably give paramount consideration to the child's handicap which is of major educational significance.

The type of program for the physically handicapped depends on the nature and severity of the handicapping condition. Usually there is some medical evaluation of the case which establishes the severity of the handicap. In addition, school personnel such as nurses, psychologists, and social workers are involved in various phases of the evaluation process. There are some students who require special class placement in a school or facility with the proper staff and equipment to deal with their problems. Students with less severe problems, however, may be maintained in regular class placement with proper planning and provision of auxiliary services. Such services might include itinerant teachers

to administer supplemental instruction. Still other children are provided home or hospital instruction on an individual case basis. At the present time, current trends in the United States indicate that there is only limited use of self-contained special classrooms for the physically handicapped. Increasingly, special educational services are being brought to these children by itinerant specialists. Moreover, the removal of architectural barriers in newer school buildings has increased the mobility of physically handicapped children who may use either crutches or wheelchairs, and has thereby enhanced the possibility of regular classroom placement.

Since many physically handicapped children possess normal learning ability and thus require little in the way of special education assistance, it is difficult to evaluate the extent of services needed in this area. The number of physically handicapped children identified in Northeastern Minnesota was considerably below the USOE nationwide estimates. Table 3 indicates that only .37 percent of the school population in this region of the state are considered to have physical impairments of sufficient educational significance to warrant special education services for their specific needs,

A variety of reasons could be posited to explain the low prevalence rate obtained in the present study. First, it is exceedingly difficult to make accurate diagnoses of physical

impairment using a voluntary reporting procedure. Inaccuracy in using such an approach is perhaps greatest when applied to the area of health impairment, since accurate diagnosis of this disability usually requires professional expertise and extensive diagnostic services. The employment of such services would be prohibitively expensive and was considered to be beyond the scope of the present study.

Second, not only do many mild physical impairments go undetected in the school population, but many of the physically handicapped possess normal or above normal learning ability which permits them to make an adequate adjustment within the regular education program. Thus, they do not exhibit severe enough learning difficulties to require special education assistance.

Third, it was noted earlier that advances in medical science appear to be reducing and/or ameliorating many physical defects among young children. These advances in science and technology have undoubtedly contributed, during recent years, to reducing the number of children with mild and moderate impairments who require special education assistance in the public schools.

Fourth, it is possible that a small number of physically handicapped children could have gone undetected in the present survey because they may have been receiving educational assistance in areas outside the northeast region of the state. If such service had not been arranged through existing state and private

services in this region, it is entirely possible that the presence of such defects would have gone undetected.

Finally, a number of children with physical handicaps are accommodated through programs established for other types of handicapped children. It is not uncommon, for example, to find physically handicapped children in classes for educable and trainable mentally retarded children as well as in programs for children with hearing impairments, visual impairments, and special learning disabilities.

Although the figures obtained in the present study appear low, the Study Team feels that they represent a reasonably accurate estimate of the prevalence of this type of handicapped child. The children identified in this group, for the most part, possess rather significant physical impairments. Moreover, a fairly large proportion of the 322 children identified in this study possess a number of rather significant concomitant learning disabilities. Such multiply handicapped children present a unique challenge to education since so little is known at the present time about their educational disabilities and needs. The Study Team hopes that the hiatus of knowledge in this area will soon be filled through the launching of intensive diagnostic and treatment studies among multiply handicapped children. The first step in this program of research should include an intensive prevalence survey to ascertain present and future service needs of multiply handicapped children in the

State of Minnesota. Such a study would represent a first attempt to determine the feasibility of the present educational and technological approaches for serving the needs of children with multiple impairments.

Children with Speech Impairments

Van Riper (1963) defines speech as "defective when it deviates so far from the speech of other people that it calls attention to itself, interferes with communication, or causes its possessor to be maladjusted" (p. 16). A further delineation is made between speech disorders of a "functional" or "organic" nature. Functional speech disorders are ones in which no discernible deviations of physical structure appear to exist as in the case of articulation and stuttering problems (Hull, 1963). In contrast, organic speech disorders appear to emanate from underlying structural defects (e.g., cleft palate and cerebral palsy speech). Johnson (1959) lists the following types of severe speech disorders among school children: (1) articulation, (2) voice, (3) stuttering, (4) cleft palate and lip, (5) delayed speech development, (6) cerebral palsy and other types of neuromuscular impairment, and (7) miscellaneous fluency and rate problems. Articulation problems rank as the most prevalent of the various speech disorders.

Speech therapy is one of the most commonly provided special education ancillary services. These services are usually allocated

in the following manner: 75 percent in grades K through second, 18 percent in grades 3 and 4; and 7 percent in grades 5 through 12. Instruction is provided two or three times weekly on either an individual or small group basis in therapy sessions ordinarily lasting for 30 minutes. A minimum of 60 minutes of speech and language therapy per week is usually recommended. Current program trends indicate that increasing emphasis in speech therapy services is being given to early identification and service to children with major language disorders and/or poor language development.

No attempt was made to survey the number of children in Northeast Minnesota with significant speech impairments. This decision was made primarily because of the many difficulties inherent in making a presumptive diagnosis of speech difficulty through voluntary reporting procedures. In his conclusive prevalence study of handicapped children in Georgia, Wishik (1956) found that the degree of accuracy among voluntary reports of speech impairments to be quite low (53 percent). Another reason for eliminating this category of impairment from the survey was that current estimates of the prevalence of speech defects are based on a large number of empirical studies conducted by various agencies, including the American Speech and Hearing Association and the USOE. For these reasons, the USOE estimate of 3.5 percent was used to project the number of speech handicapped children in Northeast Minnesota.

Using the widely accepted rate of 3.5 percent of the school population, approximately 3061 children in Northeastern Minnesota could be expected to exhibit more or less severe speech impairments. The number of children expected to have such disabilities ranges from a low of 182 in Cook and Lake Counties to a high of 1430 in the Duluth/Cloquet Region. The Special Education Section of the State Department of Education recommends a maximum case load of 60 pupils per speech therapist (Department of Education, 1966). Applying this directive to the number of estimated children with speech defects in this area of the state indicates that approximately 51 speech and hearing therapists would be required to provide an acceptable level of quality service.

Hearing Impaired

The hearing impaired are usually divided into two groups according to degree of hearing loss -- the deaf and the hard of hearing. Although the auditorially handicapped are often divided into groups for educational purposes, it is apparent that hearing losses vary along a continuum from insignificant to total (Wooden, 1963). In educational terms, the deaf can be defined as comprising those children "in whom the sense of hearing, either with or without a hearing aid, is insufficient for interpreting speech" (Wooden, 1963; p. 344). The hard of hearing consist of those children "in whom the loss of hearing is educationally significant, but whose residual hearing is sufficient for

interpreting speech with — if not without — a hearing aid" (Wooden, 1963; p. 344). The USOE estimated incidence of deaf children is 0.1 percent of the school population, while hard of hearing children make up an estimated 0.5 percent of the school-age population.

Several types of facilities are in use in the United States to provide educational services for the auditorially handicapped. The type of educational service recommended for hearing impaired children is dependent upon a number of factors, including (1) age of onset of impairment, (2) extent and nature of loss, (3) intelligence and other learning considerations, (4) presence of other handicaps, and (5) ability to utilize residual hearing. Because of the major difficulties hearing impaired children encounter in acquiring speech and language skills, a strong preschool and parent education program is an imperative component of a comprehensive educational service. Presently, approximately 63 percent of deaf and hard of hearing children receive educational services in public school programs (Mackie, 1964).

The figures represented in Table 3 indicate that approximately 0.13 percent of the school population in Northeastern Minnesota have significant hearing impairments. Further inspection of the data in this table reveals that most of the children in this group are considered to be hard of hearing and possessing less severe hearing deficits. Little regional variation was noted in

the prevalence rates of hearing impaired children. They range from a low of 0.10 in Cook and Lake Counties to a high of 0.15 in the East Range. Again, the rates reported in the present study are considerably below the USOE figure which estimates that approximately 0.6 percent of the school population possess significant hearing impairments. The rates found in the present study tend, however, to agree quite closely with the findings of a recent survey of hearing impaired children in Minneapolis. In fact, the prevalence rate for hearing impaired children in Minneapolis was lower than that obtained for Northeast Minnesota.

The Study Team thus believes that the figure reported in Table 3 is a reasonably accurate reflection of the number of hearing impaired children in this region of the state. However, the actual prevalence of hearing impaired children in Northeast Minnesota probably falls somewhere between the figure reported in this study and the U.S. Office of Education estimate.

Visually Impaired

The term "visually impaired" encompasses two groups of children -- the blind and the partially sighted. The essential distinctions made between blind and partially sighted children

The authors would like to express appreciation to Dr. Donald Moores, University of Minnesota, for providing us with this information.

are based on both the degree of useful vision they possess and the media they use to read. Ashcroft (1963) defines blind children as those "who have so little remaining useful vision that they must use braille as their reading medium" (p. 414). The partially sighted, in contrast, comprise those children "who retain a relatively low degree of vision and can read only enlarged print or those who have remaining vision making it possible for them to read limited amounts of regular print under very special conditions" (Ashcroft, 1963; p. 414). The legal definition of blindness is a visual acuity of 20/200 or less in the better eye with the best possible correction or a restriction in the field of vision to an angle subtending an arc of 20 degrees or less (American Foundation for the Blind, 1961). Using essentially a visual acuity criterion, Hathaway (1959) defines the partially sighted as those who have remaining visual acuity between 20/200 and 20/70 in the better eye with the best correction or who, in the opinion of eye specialists, can benefit from appropriate special education services.

Several different administrative plans are employed to provide services to visually impaired children. The more common approaches are the itinerant teacher, resource teacher, special class, or residential school plans. The itinerant teacher, resource teacher, and special class arrangements primarily represent services provided by local school districts. The essential differences

among these three options reside in the amount and type of service provided as well as in the ratio of time spent in the regular classroom to time spent in a special classroom setting. The residential school plan is a self-contained educational program which primarily serves blind rather than partially sighted children (Ashcroft, 1963). Recent statistics indicate that approximately 65 percent of the visually handicapped children given special education services are accommodated in local public school programs, while 35 percent of the children are educated in residential school settings (Mackie, 1964).

Approximately 0.33 percent of the school population in Northeastern Minnesota were considered to exhibit significant visual impairments. Some regional variation was noted with estimates ranging from a low of 0.23 in the Duluth/Cloquet region to a high of 0.47 in the East Range. Figures reported in the Survey are considerably higher than those estimated by the USOE (0.33 versus 0.09 percent). Further inspection of the data reported in Table 3 reveal that the largest discrepancy occurs in the sub category designated "partially sighted." In this sub category, the prevalence figures reported in the present study were appreciably higher than those reported by the USOE. Perhaps part of this discrepancy in rates could be attributed to the fact that the Study Team identified a large number of visually handicapped children through State Services for the Blind in the Department of Public Welfare.

Many of the partially sighted individuals listed with State Services for the Blind may either require minimal or no special education services. Thus, the figures for partially sighted children may be slightly inflated.

It is difficult to estimate accurately the amount of special education service required to accommodate the educational needs of visually impaired children. To accommodate the children diagnosed as blind would require approximately 12 teachers. Most of the children identified as partially sighted could be served within the context of the regular education program, provided that adequate supportive services were made available.

Emotionally Disturbed/Socially Maladjusted Children

While considerable overlap is inherent in the categories "emotionally disturbed" and "socially maladjusted," the terms are not considered synonymous for educational purposes. Pate (1963) defines an emotionally disturbed child as one whose "reactions to life situations are so personally unrewarding and so inappropriate as to be unacceptable to his peers and adults" (p. 242). For educational purposes, he further states that a child is disturbed when his behavior is so inappropriate that regular class attendance (1) would be disrupting for the rest of the class, (2) would place undue pressure on the teacher, or (3) further the disturbance of the pupil. The socially maladjusted child is defined as a chronic

juvenile offender who persistently refuses to conform to minimal and acceptable standards of conduct required in regular school classrooms (Pate, 1963). Pate (1963) suggests the most obvious and salient difference between the categories "socially maladjusted" and "emotionally disturbed" is that the former connotes a sociological difficulty. A common characteristic of children in either category is the frequent manifestation of concomitant school-related learning problems. Thus, it is often difficult in many cases to differentiate unequivocally among the categories of emotionally disturbed, socially maladjusted, and special learning difficulties.

Educational as well as ancillary psychiatric and social work services are provided for the emotionally disturbed and/or socially maladjusted in a variety of settings. Among the more common types of programs are those in (1) private day or residential schools which may include both intensive educational and psychiatric services, (2) special classes and ancillary services in out-patient community mental health centers, and (3) special classes in regular elementary or secondary schools. No matter what organizational design is used to provide school instruction to disturbed or socially maladjusted children, all programs require the maintenance of low teacher-pupil ratios along with adequate supporting services from other disciplines (e.g., psychology, guidance and counseling, social work, psychiatry, etc.). Since the cost of providing

services to these children is high, an adequate population and financial base is essential.

Table 3 indicates that only 0.17 percent of the school population in Northeastern Minnesota was considered to exhibit severe emotional disturbance and/or social maladjustment. Some variation was found in the prevalence rates by region for emotionally disturbed and/or socially maladjusted children. The rates varied from a low of 0.06 percent in the Cook and Lake region to a high of 0.25 percent in the Duluth/Cloquet region.

Additional data were obtained on the number of school age pupils receiving state correctional services. Current data from the Minnesota Department of Corrections indicate that (1) approximately 80 juveniles were admitted to state correctional institutions from Northeast Minnesota during fiscal 1968-69, and (2) about 40 juveniles (CA 6-18) per month were placed on probation in this area during the period of July through December, 1969. These figures doubtless contain a number of pupils in need of special education assistance. The data were not included in the estimate in Table 3 since the Study Team was unable to determine the nature of special education needs in this population.

Another major factor contributing to the low rate of referral in this category may be the fact that the state special education guidelines do not distinguish between children who are considered to be emotionally disturbed and those who are considered to exhibit

special learning difficulties. The guidelines state:

> The SLD program provides services for educationally handicapped children, commonly described as emotionally disturbed, socially maladjusted and/or learning disabled.... Under the Minnesota SLD Service Delivery System it is not necessary that a child be categorized or labeled as disturbed, maladjusted or learning disabled to become eligible to receive service under this program. The critical criteria are (1) whether the child requires special education service, and (2) which kind(s) of service a particular handicapped child may need to prevent unnecessary failure and to increase his coping skills (Elliott, 1969; p. 1).

The Study Team supports the movement away from rigid categorization of children reflected in the State "Special Learning Disability Guidelines." Under these guidelines, many children who would otherwise be identified as being emotionally disturbed and/or socially maladjusted are accommodated within the context of regular education programs through auxiliary special education services.

This figure (0.17 percent) is considerably below the nationwide estimate of 2.0 percent. Included in the present estimates, however, are only those children who exhibit more severe emotional symptomatology and may be in need of intensive psychiatric care and service, since most of the referrals to this category of handicap were obtained through regional mental health centers and local offices of the Department of Public Welfare. While the Study Team believes that the prevalence figures obtained in this survey accurately reflect the number of children exhibiting severe emotional

pathology, it is likely that these estimates do not yield an accurate reflection of the number of children with mild to moderate emotional problems who may be in need of ancillary, supportive services in the public schools. The figure also underestimates the number of pupils who may exhibit varying degrees of social maladjustment.

Since state guidelines encourage the accommodation of emotionally disturbed and/or socially maladjusted children within the regular education program, it is likely that few children with this categorical designation require separate special education services. Most of the children within this categorical designation would probably receive adequate instruction through supportive services offered under the state special learning disabilities program. In the case of children with more severe emotional pathology, however, intensive diagnostic treatment centers may need to be established through cooperative agreements with special education and regional mental health centers.

Special Learning Disabilities

Children with special learning disabilities "generally demonstrate a discrepancy between expected and actual achievement in one or more areas, such as spoken, read, or written language, mathematics, and spatial orientation which is not primarily the result of a sensory, motor, intellectual, or emotional handicap

or lack of opportunity to learn" (Kass, 1969; p. 71). Educational services for these pupils are ordinarily provided within the context of self-contained classrooms or through a resource room. The resource room plan appears to be gaining increasing prominence in public school programs. In addition to these two approaches, many school systems provide supplemental tutoring programs for limited periods of time during the school day.

The concept of special learning disabilities is one of the most exciting emerging trends in the field of special education. Since the program focuses on specific learning problems and handicaps of each student, it enables the teacher to develop an individual program of instruction based upon sound educational diagnosis. One of the major advantages of this approach is its emphasis on the learning characteristics of the child which can thus avoid some of the negative aspects of conferring labels on children which have little educational significance. It also serves a broader range of students who without supporting services could fall out of the mainstream of general education.

It has been noted in the previous section of this report that state guidelines in the SLD program do not distinguish among children designated as "emotionally disturbed", "socially maladjusted", and "learning disabled". The guidelines do require, however, that children be considered for service under the special learning disability program if (1) "they need service which the

regular program is not able to provide and (2) they would not be appropriately placed in any other special education program (i.e., programs for the mentally retarded, hearing, vision, or motor impaired)." (Elliott, 1969, p. 1)

Previous sections of this report have discussed the general procedures employed to identify children with special learning disabilities. (see pages 16 to 24 for a more complete description of the procedures,) To reiterate, the Study Team surveyed the prevalence of this handicapping condition through the analysis of composite achievement scores on the Iowa Tests of Basic Skills and Lorge-Thorndike nonverbal IQ scores provided by four of the larger school districts in this region of the state. Prevailing definitions of special learning disabilities were applied to the scores of children enrolled in the third and sixth grade of these public schools to derive estimates of the prevalence of special learning disabilities for the school population of Northeast Minnesota.

Two general approaches were used to determine the prevalence rates of special learning disabilities. First, rates were computed by determining the number of children who were performing in overall academic achievement significantly below expected achievement levels predicted on the basis of nonverbal intelligence test scores. A formula developed by Bond & Tinker (1957) was used to derive these estimates of learning potential. This formula, unlike several others, takes into account not only the child's measured

intellectual ability, but also considers the length of time he has been exposed to academic instruction.

In analyzing these data, children with IQ's between 80 and 150 were divided into one of seven ten point IQ intervals. In determining the index of learning expectancy, the midpoint of each IQ interval was entered into the formula along with the appropriate number reflecting the number of years in school at the time the achievement test was administered. That is, an expectancy score was computed separately for each grade level and IQ level. Following the derivation of the achievement expectancy score, the number of children within each IQ interval falling below certain predetermined points was identified.

Three separate cutoffs were used in both the third and sixth grade samples to identify children with special learning disabilities. At the third grade level, the number of children performing below expectancy was computed for a discrepancy of 3/4 or more of a grade and below, one grade or more below, and 1 1/2 or more grades below the predicted level of achievement. In the sixth grade, the discrepancies were: 1 grade or more below, 1 1/2 or more grades below, and 2 or more grades below. It has been noted earlier that one grade or more below predicted levels of attainment in the third grade and two grades or more below expected levels of achievement in the sixth grade are considered by most experts to define the presence of a significant learning problem (cf. Neville & Bruininks,

in press). Tables 4 and 5 contain the percentage of third and sixth grade children achieving below predicted potential in various IQ intervals for the four cities included in the Survey.

Inspection of Table 4 reveals that some fluctuations in rates of learning disabilities exist among both cities and IQ levels. The criterion of 1 grade or more below expectancy at the third grade level identified approximately 6.1 percent of the children as exhibiting special learning difficulties in the cities of Duluth, Grand Marais and Grand Rapids. Individual rates by city range from a low of 4.3 percent in Grand Rapids to a high of 8.0 percent in Grand Marais. Among this sample, surprisingly little variation exists among rates reported for the various IQ intervals. Of the total group, the prevalence rates range from a low of 4.6 percent in the 80-89 interval to 7.7 percent in the 100-109 IQ interval. The prevalence rate of children identified with special learning difficulties in these cities at the third grade level is slightly higher than the estimate of 3.0 percent given by the USOE.

Table 5 contains the percentage of sixth grade children achieving below predicted potential in various IQ intervals within the Duluth and Grand Rapids school systems. Employing the conventional learning disabilities definition of two grades or more below predicted level of performance results in the prevalence rate of 4.2 percent of the school population in these cities.

TABLE 4

Percentage of Third Grade Children Achieving Below Predicted Potential in Various Nonverbal IQ Levels Within the Duluth, Grand Marais and Grand Rapids School System

City and Definition	80-89			90-99			100-109			110-119			120-129			130-139			140-149			Totals	
	Expect.	#	%	Expect.	#	%	Expect.	#	%	Expect.	#	%	Expect.	#	%	Expect.	#	%	Expect.	#	%	#	%
DULUTH(N=979)																							
3/4 Grade Below	3.1	10	13.2	3.5	39	22.3	3.9	47	18.8	4.2	28	13.5	4.6	15	8.7	5.0	5	6.9	5.3	0	0.0	144	14.7
1 Grade Below	3.1	2	2.6	3.5	11	6.3	3.9	23	9.2	4.2	15	7.2	4.6	9	5.2	5.0	4	5.6	5.3	0	0.0	64	6.5
1½ Grades Below	3.1	0	0.0	3.5	0	0.0	3.9	3	1.2	4.2	6	2.9	4.6	3	1.7	5.0	1	1.4	5.3	0	0.0	13	1.3
GRAND RAPIDS(N=302)																							
3/4 Grade Below	3.3	3	11.1	3.7	7	8.8	4.1	5	6.7	4.5	3	3.8	4.9	1	3.2	5.2	0	0.0	5.6	0	0.0	19	6.3
1 Grade Below	3.3	3	11.1	3.7	3	3.8	4.1	3	4.4	4.5	3	3.8	4.9	1	3.2	5.2	0	0.0	5.6	0	0.0	13	4.3
1½ Grades Below	3.3	0	0.0	3.7	1	1.2	4.1	1	1.3	4.5	0	0.0	4.9	0	0.0	5.2	0	0.0	5.6	0	0.0	2	0.7
GRAND MARAIS(N=75)																							
3/4 Grade Below	2.7	0	0.0	3.0	2	13.3	3.3	6	24.0	3.6	4	26.7	4.0	2	13.3	4.3	0	0.0	4.6	0	0.0	14	18.7
1 Grade Below	2.7	0	0.0	3.0	2	13.3	3.3	1	4.0	3.6	1	6.7	4.0	2	13.3	4.3	0	0.0	4.6	0	0.0	6	8.0
1½ Grades Below	2.7	0	0.0	3.0	2	1.7	3.3	0	0.0	3.6	0	0.0	4.0	2	13.3	4.3	0	0.0	4.6	0	0.0	4	5.3
TOTALS(N=1356)																							
3/4 Grade Below	--	13	12.0	--	48	17.8	--	58	16.6	--	35	11.7	--	18	8.2	--	5	6.0	--	0	0.0	177	13.0
1 Grade Below	--	5	4.6	--	16	5.9	--	27	7.7	--	19	6.3	--	12	5.5	--	4	4.8	--	0	0.0	83	6.1
1½ Grades Below	--	0	0.0	--	3	1.1	--	4	1.1	--	6	2.0	--	5	2.3	--	1	1.2	--	0	0.0	19	1.4

TABLE 5
Percentage of Sixth Grade Children Achieving Below Predicted Potential in Various Nonverbal IQ Levels Within the Duluth and Grand Rapids School Systems

City and Definition	80-89			90-99			100-109			110-119			120-129			130-139			140-149			150-159			Totals	
	Ex-pect.	#	%	Ex-pect.	#	%	Ex-pect.	#	%	Ex-pect.	#	%	Ex-pect.	#	%	Ex-pect.	#	%	Ex-pect.	#	%	Ex-pect.	#	%	#	%
DULUTH(N=1162)																										
1 Grade Below	5.7	13	22.8	6.3	34	28.3	7.0	70	27.4	7.7	94	28.5	8.3	60	23.4	9.0	44	38.6	9.7	14	48.3	10.3	2	66.7	331	28.5
1½ Grades Below	5.7	5	8.8	6.3	11	9.2	7.0	40	15.7	7.7	49	14.8	8.3	26	10.2	9.0	25	21.9	9.7	5	17.2	10.3	1	33.3	162	13.9
2 Grades Below	5.7	0	0.0	6.3	3	2.5	7.0	12	4.7	7.7	13	3.9	8.3	11	4.3	9.0	13	11.4	9.7	2	6.9	10.3	1	33.3	55	4.7
GRAND RAPIDS(N=268)																										
1 Grade Below	5.8	4	3.1	6.5	13	40.6	7.2	17	21.5	7.9	20	19.6	8.6	6	18.2	9.3	3	33.3	9.9	0	0.0	10.6	0	0.0	63	23.5
1½ Grades Below	5.8	1	7.7	6.5	6	18.8	7.2	5	6.3	7.9	1	1.0	8.6	4	12.1	9.3	3	33.3	9.9	0	0.0	10.6	0	0.0	20	7.5
2 Grades Below	5.8	0	0.0	6.5	2	6.2	7.2	2	2.5	7.9	0	0.0	8.6	0	0.0	9.3	1	11.1	9.9	0	0.0	10.6	0	0.0	5	1.9
TOTALS(N=1430)																										
1 Grade Below	--	17	24.3	--	47	30.9	--	87	26.0	--	114	26.4	--	66	22.8	--	47	38.2	--	14	51.8	--	2	66.7	394	27.6
1½ Grades Below	--	6	8.6	--	17	11.2	--	45	13.5	--	50	11.6	--	30	10.4	--	28	22.8	--	5	18.5	--	1	33.3	182	12.7
2 Grades Below	--		0.0	--	5	3.3	--	14	4.2	--	13	3.0	--	11	3.8	--	14	11.4	--	2	7.4	--	1	33.3	60	4.2

Unlike the data presented on third grade children, wide fluctuations appear among rates reported for the two school districts. Total prevalence rates range from a low of 1.9 percent in Grand Rapids to a high of 4.7 percent in the Duluth school system. Since a variety of factors could be responsible for these discrepancies among school districts (such as testing practices), no interpretation is being provided for this finding. The data presented for sixth grade children also differs from that summarized in Table 4 on third grade children in that wide fluctuations are present in the prevalence rate by IQ intervals. The higher IQ levels (i.e., those above 130) appear to contain a large proportion of children with suspected learning disabilities. It should be noted that too few cases are included in many of these intervals to make accurate, definitive judgments. The problem of statistical regression as well as common sense suggest it may be unrealistic to predict, on the basis of IQ scores alone, that a child will reach an educational attainment in basic academic subjects of ninth grade or higher in the sixth grade. Little credence, therefore, is being placed in these high rates obtained in the higher IQ intervals. Since the rates in these intervals have little effect on the overall prevalence figures, the rate of 4.2 percent identified for this sample is probably an accurate projection of the number of children with learning difficulties requiring special education

assistance in Northeast Minnesota.

A second method employed to ascertain the percentage of children with special learning disabilities identified the number of children achieving significantly below grade level irrespective of measured intellectual ability. Table 6 presents the percentage of children achieving significantly below grade level in the cities of Duluth, Grand Marais and Grand Rapids. At the third grade level, the differences among prevalence rates reported for the school systems in Duluth, Grand Rapids and Grand Marais were relatively small. The overall prevalence rates of children achieving one grade or more below grade level in these school districts was 6.7 percent. This figure agrees quite closely to the one obtained using the more elaborate methodological approach based on years in school and measured intellectual ability. Again, the rates for these school districts are quite similar in magnitude.

The overall prevalence rate of sixth grade children achieving significantly below grade, level in the two school districts was 2.9 percent. At the sixth grade level, prevalence rates ranged from a low of 2.7 percent in Duluth to a high of 3.7 percent in the Grand Rapids School System. This figure is somewhat below the rate of 4.2 percent using the IQ and length of education experience as predictive criteria.

In summary, using either of the two procedures to identify children with special learning disabilities yielded prevalence

TABLE 6

Percentage of Pupils Achieving Significantly Below Grade Level in the Duluth, Grand Marais and Grand Rapids School Systems

Grade Level	Duluth		Grand Marais[a]		Grand Rapids		Totals	
	#	%	#	%	#	%	#	%
THIRD GRADE								
3/4 Grade Below	140	14.2	9	12.0	26	8.5	175	12.9
1 Grade Below	73	7.4	3	4.0	15	4.9	91	6.7
1½ Grades Below	5	0.5	1	1.3	4	1.3	10	0.7
SIXTH GRADE								
1 Grade Below	161	13.8	0	0.0	34	12.6	195	13.6
1½ Grades Below	82	7.0	0	0.0	23	8.6	105	7.3
2 Grades Below	31	2.7	0	0.0	10	3.7	41	2.9

[a]Sixth grade data not available.

rates of approximately 5 percent among the school districts included in the sampling study. The grade level criterion for special learning disabilities yielded rates similar to those obtained through the use of a formula which included years in school and intelligence test scores as criteria of learning potential. While the rates were quite similar, it should be noted that the two methods do not necessarily identify the same children as "learning disabled". Application of the grade level criterion results in the identification of few children with IQs exceeding 110 as exhibiting significant learning problems. The achievement expectancy approach, however, identifies approximately the same proportion of learning disabled children across the various IQ intervals. The choice of method to define special learning disabilities should be determined primarily by the severity of educational need rather than on the basis of a prior statistical and/or methodological factors. The methodological considerations involved in the definition of learning disabilities do emphasize the need for further research.

Summary

The purpose of this chapter was to present the findings of inclusive prevalence study of handicapped children in Northeast Minnesota. A brief discussion of the major findings is

presented below.

(1) Approximately 12 percent of the school children in Northeast Minnesota were identified as possessing handicaps of major educational significance. The USOE nationwide estimate of handicapped children is approximately 13.5 percent of the school population. Approximately one-half of these children exhibited special learning disabilities as their major handicap. The rates for most other handicapping conditions were below those estimated by the U.S. Office of Education. Since all prevalence estimates contain some degree of error, the reader is cautioned against uncritically accepting the findings of this survey or the estimates reported by the USOE.

(2) Little regional variation was noted in the prevalence figures for various handicaps within Northeast Minnesota.

(3) Approximately 1117 (1.27 percent) of the children were considered mentally retarded on the basis of low IQ scores and deficiencies in school achievement. About 1.0 percent of the children were diagnosed as mildly or moderately retarded; 0.27 percent were diagnosed as severely retarded. The rate of mild/moderate retardation was approximately one half of the national estimate; the percentage identified as severely retarded closely approximated national estimates.

(4) Approximately 0.37 percent of the school population or 322 children were considered to be so physically handicapped as to

require special education services. Most of these children displayed orthopedic rather than health impairments. This prevalence figure is considerable below the nationwide estimate of 2.0 percent for physically handicapped children. Since many of the physically handicapped either do not exhibit learning difficulties or are served within special education programs for the mentally handicapped, learning disabled and sensorial impaired, the USOE figures probably overestimate the actual number of physically impaired children requiring specialized educational services. The estimate derived in this study, however, may be somewhat conservative. It is important to re-emphasize the fact that the figures used in this study are non-overlapping. Thus, the figure reported in this study does not reveal the number of physically handicapped children receiving special education services in programs designed essentially for other non-physically handicapped children.

(5) USOE estimates were employed in determining the number of children with speech defects in need of special education services. Using a prevalence rate of 3.5 percent, approximately 3061 children in Northeast Minnesota would be in need of speech correction services.

(6) About 0.13 percent of the school population (115 children) displayed significant hearing defects. While this figure is

considerably below that of the USOE, the study team believes it represents an accurate estimate of hearing impaired children in Northeast Minnesota. Recent independent surveys in Northeast Minnesota and Minneapolis identified approximately the same prevalence rate for hearing impaired children as that obtained in the present study. While the USOE estimate may be an accurate nationwide index, it appears to present an inflated projection of the prevalence of hearing impairment among children in Northeast Minnesota.

(7) Approximately 0.33 percent of the population were considered to display significant visual impairments. Most of these students displayed mild visual defects and would probably not require extensive special education service. While the overall rate for visually impaired children was higher than the USOE estimate, the rate obtained for blind children (.07 percent) more clearly approximated the national projection (.03 percent).

(8) Very few children were identified as severely emotionally disturbed and/or socially maladjusted (0.17 percent). The rate obtained in this survey is considerably below present USOE projections. However, under current state special education guidelines, many children with behavior problems are served through the special learning disabilities program. With this approach to treatment, fewer children would likely be identified

as being emotionally disturbed or socially maladjusted. The study team supports this orientation and believes that it is more appropriate for most behavior problem children. The figure of 0.17 percent may thus reflect the number of children in this area of the state who are in need of intensive psychiatric services. Moreover, this figure includes few juveniles who have been adjudicated as delinquent. The reader is cautioned against placing much credence in this finding and a more intensive study of the school population should probably be undertaken to determine the special education needs of these children.

(9) A special sampling study analyzed third and sixth grade Lorge-Thorndike nonverbal IQ scores and composite scores of the Iowa Tests of Basic Skills to estimate the prevalence of children with special learning disabilities. While a number of methodological limitations of the procedures employed in the study were cited, the study team feels that the rates obtained in the survey more accurately reflect special education needs for this type of handicap than many of the commonly cited prevalence statistics. Using two different procedures, approximately 4.0 to 6.0 percent of the school population in the sample were identified as achieving sufficiently below grade level or intellectual ability expectations to be considered to possess major academic learning problems. This figure is about double the present USOE estimate.

CHAPTER III

PROJECTIONS OF HANDICAPPED CHILDREN IN NORTHEAST MINNESOTA: 1970 to 1980

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PROJECTIONS OF HANDICAPPED CHILDREN IN NORTHEAST MINNESOTA: 1970 to 1980

The study team felt that the development of effective organization for planning special education services in Northeast Minnesota required projections of the number of handicapped children that could be expected during the next ten years. Virtually all other planning decisions are to some degree dependent upon these projections.

There are many difficulties involved in any attempt to determine what the pattern of births, deaths and migration will be like in this relatively restricted geographical area for the period extending to 1980. The projected numbers of handicapped children presented in this chapter are based on estimates of school enrollments along with some qualifications based on partial knowledge of other contributing variables. Techniques taking into account historical data are based on the assumption that the general trends of yesterday and today will not change in future years. Future deviations in population trends such as change in the birth rate, etc., may not be accurately predicted through such projection techniques.

The projected enrollment tables presented in this report were developed by a technique which uses survival ratios of

enrollment data as well as growth ratios of census data. A survival ratio is determined by dividing the enrollment of children in a particular grade or children in an age group during a given year by the enrollment of children the preceding year in one order lower grade or age group. For example, to establish the survival ratio for the year 1967 for sixth graders, one would divide the number of sixth graders in 1967 by the number of fifth graders in 1966.

A weighting system was devised that gave the most recent survival ratios a heavier weight. This practice rests on the belief that the most recent data are probably better predictors for the future. Assuming a ten year history which was used in these calculations, the most recent ratio, 1969-70, was assigned a weight of 9.0 and the least recent, 1960-61, a weight of 1.0.

If enrollment projections are made far enough into the future, a point may be reached where no past data exist for the calculation of survival ratios. For example, children who will be in the first grade eight years from now obviously have not been born. Thus, census data must be projected so enrollment projections can be made. Census projections were determined by the use of a growth ratio calculated on existing historical data. Growth ratios were also weighted in the same manner as the survival ratios.

Both survival and growth ratios, even when weighted, share

one shortcoming—i.e., there is no way to account for a departure from the trend established by historical data. This becomes a factor in the enrollment projections reported here because it is expected that there will be departures from past patterns in certain areas of Northeast Minnesota. Consequently, in addition to the use of survival and growth ratios, there has to be an allied use of "best guesses".

It must be emphasized that the enrollment projections are a function of the statistical treatment of certain kinds of data. Certain ground rules are established and followed. Since there are other types of data and statistical techniques that could have been used, the reader is cautioned not to assign the data a greater degree of validity than the figures deserve.

Table 7 contains school population projections in Northeast Minnesota for the period of 1970 to 1980. The table summarizes both projected enrollments and percent change in school population for this area. The changes in school population were computed for each year by determining the percent change for each year in relationship to the current school year (1969-70). That is, the difference between the current school year and projections of future years was divided by the current, 1969-70, figure. Thus, the "percent change" figure in Table 7 refers to amount of deviation from the current school year (1969-70).

The data in Table 7 reveal that most of the areas in

TABLE 7
Population Projections of Pupil Enrollments by Region in Northeast Minnesota

Year	Cook/Lake		Duluth/Cloquet		East Range		West Range		Total	
	#	% Change	#	% Change	#	% Change	#	% Change	#	% Change
1969-70	5,215	--	40,853	--	21,000	--	20,414	--	87,482	--
1970-71	5,000	- 4.12	42,777	+4.71	18,447	-12.16	17,685	-13.37	83,909	- 4.08
1971-72	4,817	- 7.63	42,266	+3.46	17,754	-15.46	16,994	-16.75	81,831	- 6.46
1972-73	4,608	-11.64	41,767	+2.24	16,996	-19.06	16,339	-19.96	79,710	- 8.83
1973-74	4,389	-15.84	41,323	+1.15	16,082	-23.42	15,548	-23.84	77,342	-11.59
1974-75	4,181	-19.83	41,166	+ .77	15,335	-26.98	14,780	-27.60	75,462	-13.74
1975-76	4,006	-23.18	41,085	+ .57	14,525	-30.83	14,011	-31.36	73,627	-15.84
1976-77	3,688	-29.28	40,928	+ .18	13,784	-34.36	13,342	-34.64	71,742	-17.99
1977-78	3,554	-32.04	40,815	- .09	13,026	-37.97	12,659	-37.99	70,054	-19.92
1978-79	3,365	-35.47	40,834	- .05	12,328	-41.29	11,993	-41.25	68,520	-21.68
1979-80	3,182	-38.98	40,928	+ .18	11,623	-44.65	11,370	-44.30	67,103	-23.30

Northeast Minnesota will witness a significant decline in school population during the coining decade. By the 1979-80 school year, the school age populations in the Cook and Lake, East Range and West Range regions are estimated to experience declines ranging from approximately 39 to 45 percent. The estimates for the Duluth-Cloquet area show a small increase for the same period. A decline of about 23 percent is projected for the total school age population in Northeast Minnesota during the next decade. This represents approximately a 2.3 percent rate of decline per year. An annual decline of 2.3 percent per year appears to be a realistic estimate when prevailing trends are taken into consideration, such as net out-migration of population in this area (particularly in the 20 to 30 age group) and a nationwide decline in the overall birth rate.

Using the population projections in Table 7, the expected number of handicapped children was computed for the 1974-75 and 1979-80 school years (see Table 8). The study team used both the USOE estimates and those obtained in the present study in making these estimates. Inspection of Table 8 reveals the effect of declining school population on the expected number of handicapped children. By 1979-80 many of the areas would not have sufficient numbers of certain low incidence handicapped children to provide a complete array of special education services

TABLE 8

Future Estimated Numbers of Handicapped Pupils By Region in Northeast Minnesota

1974-75 and 1979-80 School Years

Region	Estimated Number 1974-75	Estimated Number 1979-80	USOE Estimate 1974-75	USOE Estimate 1979-80
Cook and Lake				
Mentally Retarded - Total	52	40	96	74
Trainable Mentally Retarded	10	8	12	10
Educable Mentally Retarded	42	32	84	64
Physically Handicapped - Total	9	7	84	64
Orthopedically Handicapped	6	5	42	32
Health Impaired	3	2	42	32
Speech Handicapped	146	111	146	111
Hearing Impaired - Total	4	3	25	19
Deaf	2	2	4	3
Hard of Hearing	2	1	21	16
Visually Impaired - Total	14	11	4	3
Blind	5	4	1	1
Partially Sighted	9	7	3	2
Emotionally Disturbed/ Socially Maladjusted	2	2	84	64
Special Learning Disabilities[a]	209	159	125	95
TOTAL	436	333	564	430
Duluth/Cloquet				
Mentally Retarded - Total	588	584	946	941
Trainable Mentally Retarded	119	118	123	123
Educable Mentally Retarded	469	466	823	818
Physically Handicapped - Total	115	114	823	818
Orthopedically Handicapped	103	102	412	409
Health Impaired	12	12	411	409
Speech Handicapped	1,441	1,432	1,441	1,432

TABLE 8 (cont'd)

Future Estimated Numbers of Handicapped Pupils By Region in Northeast Minnesota

1974-75 and 1979-80 School Years

Region	Estimated Number 1974-75	Estimated Number 1979-80	USOE Estimate 1974-75	USOE Estimate 1979-80
Duluth/Cloquet (cont'd.)				
Hearing Impaired - Total	49	49	247	246
Deaf	20	20	41	41
Hard of Hearing	29	29	206	205
Visually Impaired - Total	95	94	37	37
Blind	37	37	12	12
Partially Sighted	58	57	25	25
Emotionally Disturbed/ Socially Maladjusted	103	102	823	818
Special Learning Disabilities[a]	2,058	2,046	1,235	1,228
TOTAL	4,449	4,421	5,552	5,520
East Range				
Mentally Retarded - Total	178	135	353	267
Trainable Mentally Retarded	48	36	46	35
Educable Mentally Retarded	130	99	307	232
Physically Handicapped - Total	86	65	307	232
Orthopedically Handicapped	52	40	154	116
Health Impaired	34	25	153	116
Speech Handicapped	537	407	537	407
Hearing Impaired - Total	23	18	92	70
Deaf	8	6	15	12
Hard of Hearing	15	12	77	58
Visually Impaired - Total	72	55	14	10
Blind	8	6	5	3
Partially Sighted	64	49	9	7

TABLE 8 (cont'd.)

Future Estimated Numbers of Handicapped Pupils By Region in Northeast Minnesota

1974-75 and 1979-80 School Years

Region	Estimated Number 1974-75	Estimated Number 1979-80	USOE Estimate 1974-75	USOE Estimate 1979-80
East Range (cont'd.)				
Emotionally Disturbed/ Socially Maladjusted	20	15	307	232
Special Learning Disabilities[a]	767	581	460	349
TOTAL	1,683	1,276	2,070	1,567
West Range				
Mentally Retarded - Total	162	126	340	261
Trainable Mentally Retarded	38	30	44	34
Educable Mentally Retarded	124	96	296	227
Physically Handicapped - Total	58	44	296	227
Orthopedically Handicapped	46	35	148	114
Health Impaired	12	9	148	113
Speech Handicapped	571	398	517	398
Hearing Impaired - Total	18	13	89	68
Deaf	5	3	15	11
Hard of Hearing	13	10	74	57
Visually Impaired - Total	59	45	13	10
Blind	7	5	4	3
Partially Sighted	52	40	9	7
Emotionally Disturbed/ Socially Maladjusted	16	12	296	227
Special Learning Disabilities[a]	739	568	443	341
TOTAL	1,623	1,206	1,994	1,532

TABLE 8 (cont'd.)

Future Estimated Numbers of Handicapped Pupils By Region in Northeast Minnesota

1974-75 and 1979-80 School Years

Region	Estimated Number		USOE Estimate	
	1974-75	1979-80	1974-75	1979-80
TOTALS				
Mentally Retarded - Total	958	852	1,735	1,543
Trainable Mentally Retarded	211	188	226	201
Educable Mentally Retarded	747	664	1,509	1,342
Physically Handicapped - Total	279	248	1,509	1,342
Orthopedically Handicapped	211	188	755	671
Health Impaired	68	60	754	671
Speech Handicapped	2,641	2,349	2,641	2,349
Hearing Handicapped - Total	98	87	452	403
Deaf	38	33	75	67
Hard of Hearing	60	54	377	336
Visually Impaired - Total	249	221	68	60
Blind	53	47	23	20
Partially Sighted	196	174	45	40
Emotionally Disturbed/ Socially Maladjusted	189	168	1,509	1,342
Special Learning Disabilities[a]	3,773	3,355	2,264	2,013
TOTAL	8,187	7,280	10,178	9,052

[a]This figure was obtained using an estimate of 5.0 percent

Such enrollment trends strongly support the development of regional unit(s) to provide services to the handicapped.

At this point, an earlier caveat may need to be repeated: the above data are gross estimates and may not accurately represent future school population trends. Numerous unknown factors such as population influx and increases in the birth rate could operate to reduce the accuracy of these estimates. Notwithstanding these limitations, the enrollment projections in Table 8 represent current "best guesses" of future special education needs in Northeast Minnesota.

Summary

The purpose of this chapter was to present the findings of an enrollment projection study based on the present school population in Northeast Minnesota. Enrollment projections were made for the period between the 1969-70 and 1979-80 school years. The prevalence rates obtained in this study, as well as USOE estimates, were applied to pupil enrollment projections for this period to estimate future numbers of handicapped children in this region of the state.

Based upon current population trends, the school enrollment in Northeast Minnesota is projected to decline 23.4 percent between 1970 and 1980. The pupil enrollment study projected an annual rate of decline of 2.3 percent in the school population

for the next decade. While small increase in school enrollment was projected for the Duluth/Cloquet area, enrollments in the other three areas were predicted to decline substantially during this ten year period. Factors apparently responsible for this decrease include an annual overall population loss in Northeast Minnesota of .40 to .68 percent (Hoyt & Hanson, 1967), large out migration of young people between the ages of 20 and 30, and a decline in the birth rate.

Assuming the incidence of handicapping conditions remains stable during the next ten years, school personnel can expect a proportionate reduction in the numbers of handicapped children, It is clear from these data that few school districts in this area could afford to provide an adequate continuum of services for all types of handicapped children, particularly for those conditions of low frequency. The factors of declining enrollment and reduced numbers of handicapped children make consideration of a regional approach to planning special education services both urgent and imperative.

CHAPTER IV

RECOMMENDATIONS

CHAPTER IV
RECOMMENDATIONS

A Point of View

Progress toward implementing any of the recommendations made in this or future studies of Special Education in Northeast Minnesota is contingent upon a number of factors. One major consideration is the availability of a State Department Regional Consultant in Special Education (SERC). School district efforts need to be coordinated with each other and with total state planning. The regional consultant, because of his unique position of both living in the region and of acting as an official agent of the State Department, can play a role in both the development of sound planning and coordination.

One of the most important functions the SERC can perform is to work with local districts in the development of sub-regional special education leadership resources. By serving in this capacity, the SERC can contribute to the areas of program development, design of service delivery systems, parent contact, and case management of handicapped children at the local school district level. Providing direct services is an essential aspect of meeting the needs of handicapped children, but these functions should not be considered as part of the SERC role. At this time,

he is called upon to perform certain tasks and must, because of a present leadership and coordination vacuum, be involved to some extent. Optimal development of special education services in this area requires that aggressive attempts be made to provide and organize sub-regional leadership personnel. This effort must receive top priority if the SERC is to contribute effectively to the development of quality specialized services for handicapped children.

In summary, the SERC position should be supported by:

(1) Maintaining the current position.

(2) Allocating substantial additional funds to be used at the discretion of the SERC for flexible program planning.

(3) Continuing to de-emphasize case management and other direct service functions which are more appropriately the responsibility of the local district.

Thus, the SERC position should be continued and strongly supported with it's major role perceived as acting as a stimulant and catalyst for program development and quality control of special education services.

RECOMMENDATIONS

I. AN INTERMEDIATE SPECIAL EDUCATION DISTRICT BE ORGANIZED FOR NORTHEAST MINNESOTA.

This study recommends that a legally constituted intermediate special education district be established in Northeast Minnesota to serve handicapped pupils in St. Louis, Carlton, Itasca, Lake, Cook and Koochiching counties. The creation of such an intermediate special education district would require passage of new state legislation to become a reality.

The movement toward the legally enacted intermediate school district for special education has advanced in the last two legislative sessions. In 1967 the legislature passed a law (Chapter 822) which in effect allowed for the formalizing of inter district cooperatives of school districts for vocational technical schools. The 1969 legislature amended this original law (Chapter 945) and added provisions for special education instructional services and in the driving of motor vehicles. This amended law could serve as the impetus for the formalizing of a multi-school organizational structure for special educational programs.

Prior to this law, (Chapter 945), the only vehicle for establishing inter district cooperatives was the host district model. The educational problems of Northeast Minnesota and other areas of the state cannot, however, be solved by the host district model. The vast distances between population centers, the low incidence of some types of handicapped children, and the current low level of specialized professional staffs within school

districts are all factors which contribute to the necessity for a new approach to the organization of special education services.

The wide differences in wealth between individual school districts and the resulting inequalities of general and special program opportunities further dictate the need for a broader base than the local district. Indeed, one could argue that failure of the state to insure equality of educational services and comprehensive instructional programs for children is contrary to the intent of the state constitution. At a different and more operational level, it is the belief of this Study Team that unless an administrative structure is organized which is adequately financed and includes all school districts in Northeast Minnesota, the capacity to provide quality education to all the children with educational, mental, emotional and/or physical handicaps is not possible.

It is based upon these premises that the recommendation to establish an intermediate special education district is founded. The Study Team did consider alternative proposals for providing special education services and the recommendations that follow are related to other service models. However, it is our view that any smaller organizational unit would represent only a half-way measure and could offer only temporary and inadequate solutions, rather than meeting the fundamental needs of this part of the state.

Inherent in the concept of the intermediate district is the notion that by pooling and coordinating resources the general level of services to all children will be improved. Also implied in such a concept is the fact that not all school districts will benefit equally. Those districts with the least general resources currently have the poorest services for all children and especially those who are handicapped. Conversely, those school districts with the greatest wealth, in general, offer a larger range and depth of services to their children. This inequality of resources leads the Study Team to recommend legislation be passed that requires school districts be members of the intermediate school district. To recommend otherwise might result in non-participation by the districts with greatest wealth and greater specialized resources. The poorer districts would not have sufficient resources to carry out the project alone.

Financing of the intermediate district is a fundamental problem in a region of the state that is large in area, but somewhat poor in economic resources. It is beyond the scope of this study to provide the detailed analysis necessary to determine the most equitable manner assessing program costs. Nonetheless, some general sources of revenue need to be considered. First, it might be possible to review all Federal funds and, if information is available, how current funds are allocated at the individual district level to support services on an area-wide basis. A

pooling of this information might suggest more effective means of obtaining Federal funds. It is important to note that almost all Federal funds that are not automatically given on a pupil eligibility base, including those from Title VI and Title III, give first priority to large area proposals.

State reimbursement funds could also be allocated over the whole area or intermediate district rather than on an individual school district basis. This in turn suggests that new personnel practices would have to be devised for the employment of the professional staff needed for special education programs.

The formula for raising local tax dollars to support an intermediate district is unquestionably the most difficult to operationalize. Some states with intermediate school districts have used a fixed mill levy approach. In Minnesota the special legislation for a vocational and special education cooperative in the Hennepin County School districts provides for each school district to levy four mills on each dollar of the assessed valuation of all taxable property. Moreover, tax levies may also be certified for two mills to be used specifically for special education and driver education. Another option that could provide part of the financial support for this unit would be a direct special appropriation from the state to assist in underwriting the costs of operation.

Second only to the fiscal base problems would be those involved in organizing the administrative structure of the

intermediate district. Paralleling the varieties of financing patterns are the diverse approaches found elsewhere for administrating an intermediate district. Almost without exception, all intermediate districts have a board of directors which set the general policies and publicize the purpose of the unit to the wider community. In other states, intermediate districts frequently are governed by board members elected from a pool consisting of local participating boards of education.

This study recommends another approach. All school superintendents from the school districts in Northeast Minnesota would be members of a general advisory board. From this group, seven superintendents would be elected to serve as the executive board to govern the intermediate district. Consideration in selecting the members of the board of directors of the executive committee would be given to county representation, size of school district and other variables. At specified intervals the executive board would report back to the general advisory board of school superintendents.

The executive director for the intermediate district would be directly responsible to the executive board for the conduct of the district. The State Department of Education, Special Education Section, would in turn be required to formulate operating policies and regulations that allow for more decentralized decisions and authority for the executive director.

The responsibilities of the executive director would be to give general administrative leadership for all special education programs within the district. This in the broadest terms requires personnel and a delivery system to accomplish the objectives of the organization. This study in a subsequent recommendation suggests the formation of three new inter district special education cooperatives and the hiring of a director for each. While each of these sub-districts and directors is seen as important, this type of administrative structure is viewed as transitional in nature. At the present time, the only possible way, under Minnesota education laws, for these positions to be filled and serve other districts is under host district provisions. Under an intermediate district organization, the Study Team eventually would see these regional inter district directors shifting administratively from the local host district to the intermediate structure. They would then be part of the area-wide organization and coordinate their activities within the sphere of the larger district. This does not imply that they would function on a daily basis in different schools than they now serve. It only recommends that they would be part of the overall structure and would have access to its resources for their programs. It can also be envisioned that specialists such as school psychologists, social workers, consultants in low disability areas and specialists in functional performance areas as language acquisition and development be administratively responsible to the intermediate district.

The second major advantage provided by an intermediate special education district is a system to effectively coordinate and deliver identified and needed services to school districts and the children with special educational needs. In the broadest sense this would be the overall goal of a regional resource system.

II. A REGIONAL RESOURCE SYSTEM BE ESTABLISHED

It is recommended that a regional resource system be established that would serve as the organizational unit to provide comprehensive services to all children with specialized educational needs in Northeast Minnesota. The sub-systems or components of a regional resource system would include: (1) an administrative and program consultation system, (2) research and pupil-program evaluation system, (3) in-service and continuing staff education system, and (4) parent education system.

The factors of population distribution and distance between communities argues against the idea of a centrally located center where all professional staff are housed and children are brought to a facility. Instead, a form of a decentralized organization is envisioned. This might mean an operating model that had a number of specialists assigned from the regional resource system to work full time with a director of an inter district cooperative. Other specialists in low incidence areas would serve this whole area of the state. Certain operations do require a centralized

location, but other services proposed herein can be vended directly to the schools as contrasted with the alternative of children and personnel being transported to a center.

Consultation System. The regional resource system would serve as vehicle for a coordinated administrative unit. The line administrators of the organization would be composed of the director of the overall intermediate special education district, the local inter district cooperative directors, and the local directors of special education. Other supportive and consultative staff such as speech therapists, school psychologists, social workers would be assigned to a team within an inter district or to a local director.

Prescriptive instruction system. The overall goal of a prescriptive instructional system is to individualize instruction for students with learning and/or adjustment difficulties. Central to this goal is the belief that the regular classroom teacher is essential to serving the needs of most children encountering difficulties in learning. The focus of this system, therefore, is in the support and assistance of the mainline instructor who must ultimately educate the vast majority of children with learning and accompanying difficulties.

The sub-units of a prescriptive instruction system are: (1) intake, (2) educational assessment, (3) instructional materials, and (4) outreach and follow-up.

Intake. This sub-unit of the system defines policy and responsibility for decisions relating to the number and type of children to be served. Included in this unit's role would be the working policies for initial referrals, collecting of relevant data on a particular child and his family, assisting school personnel to work with parents, and interpreting to school personnel the meaning of a referral to the regional resource center. This unit also would carry organizational responsibility for

recommending to the administrators those students which should be accepted for processing by the center and finally for recommending necessary changes in local school district referral process and procedures.

Educational assessment. This unit would be responsible for carrying out a longitudinal educational diagnosis and for developing initial prescriptions for the type of specific educational intervention necessary. The educational diagnosis performed by this unit would not be the type of diagnosis typically conducted in public schools, where diagnosis becomes a matter of a short time sampling of the child's behavior by application of a series of individual psychological tests. The objectives of this unit's educational evaluation would be to describe in performance terms a child's behavior (either learning behavior and/or affective behavior), to develop a set of objectives for behavior consistent

with expected performance, and to develop specific techniques and/or approaches to remediate the observed difficulties. Involved in this longitudinal diagnosis would be the utilization of a "diagnostic classroom" where the child would be placed for a short period of time, generally ranging from two to six weeks. A master diagnostic teaching staff consisting of a classroom teacher and a school psychologist would work together carefully in the unit to attempt different learning modalities and material to refine initial diagnostic impressions. An important part of the educational diagnosis would be refinement and interpretation of data relative to family expectations, emotional support, and other important family-related variables. This refinement and interpretation of family data is usually best accomplished by a professionally trained social worker.

In addition to prescribing specific techniques and/or procedures relative to remediating the child's difficulty, personnel of this unit will also recommend specific types of learning materials and/or equipment to the classroom teacher which might be most useful in carrying out the intent of the prescription.

Instructional materials. This unit has responsibility for surfacing and/or developing materials necessary to carrying out an educational prescription for a child in the classroom. Personnel in this unit are responsible for developing and/or locating the necessary instructional materials and equipment relative to

implementation of the student's prescription. As such, these personnel will need to maintain a rather wide range and an extensive supply of samples of available commercial and teacher made instructional materials. They will need to consider as a part of their function the evaluation of these materials relative to their instructional purpose, their effectiveness for this purpose, and will need to develop coding and annotating systems so that these materials may be retrieved as efficiently as possible, Specialists employed in this unit will respond to requests from personnel in the educational diagnosis and prescription unit for specially adapted materials necessary during the in-patient diagnostic classroom phase. An additional function of this unit will be the on-going field assessment of materials that have been recommended for use with individual prescriptions.

Outreach and follow-up unit. The primary purpose of personnel employed to function in this unit is to transmit and follow up on individual children who will attend the regional center. Personnel in this unit will be entirely responsible for on-going case management of students who have been referred back to the local school district. These personnel will not actually handle or conduct long range instruction or tutoring or other service programs for children who have been seen by the center, but will continue to work carefully with teachers and parents on whatever

basis necessary to achieve not only initial implementation of the original prescription, but to achieve continued modification of the prescription as the needs of the pupil dictate. Personnel in this unit, because of their extensive interface with teachers, parents, principals, and others in the school will have responsibility for identifying specific training needs of teachers and other school personnel and for recommending appropriate in-service activities to the administration of the prescription instruction center. This outreach and follow-up process is one of the most essential to effective utilization of educational prescriptions. Teachers need to have consistent interpretation, consultation and follow-up, relative to case management for the prescriptive processes to have efficacy for individual children. In a sense, this unit is the total delivery system for the work of the
prescriptive instruction center and is vital to its operation.

Research and pupil program evaluation system. This unit would provide the region with a computer based research and pupil program evaluation system. Many of the new educational techniques that are being developed and introduced into school systems have not been researched or field tested. Their efficiency is relatively unknown with respect to the functional learning problems in students. Evaluation and assessment of these instructional materials and media would be one responsibility of this unit.

Another necessary function this unit might serve is related to the type of pupil assessment procedures described in Chapter II for determining the incidence of children with significant learning problems. Essentially this type of a pupil monitoring system in its simplest form could provide school administrators with a percentage figure by grades and, if desired, by name of all children achieving below expectation. The restrictions and cautions in overemphasizing such an approach are also cited in Chapter II. Nonetheless, this system could give normative data on a broad area of the state and allow for the planning of vital support programs and staff allocation from the regional resource center.

Other more routine functions of this unit could be in the areas of pupil scheduling, grade reporting, fiscal analysis of program costs, and processing of data on the evaluation of pilot educational programs.

In-service and continuing staff education system. Another component of the regional resource unit would focus on the broad area of continuing education with a view to improving the skills of the general classroom teacher and thereby services to all children., The development of this service capability would stem from two major premises. First, for any significant change to occur in the education of children defined as handicapped the coping ability of the regular classroom teacher and mainstream education has to be improved. This is necessary because it is most often the

regular classroom teacher who reviews a child's educational strengths and limitations and then assesses whether or not a child can be educated in the regular classroom. In a more general sense, the more traditional the school system and more formalized the curriculum, the greater the number of children who are considered as "fall-outs." Thus, any continuing education program that expands knowledge of educational strategies for individualized education for regular classroom teachers assists in keeping more children in regular educational programs.

A second premise relates to a strategy for educational change for a total school organization. For any new educational approach to be effective in a school the total organization must change. This belief is in contrast to the introduction of a new textbook series or approach in a single grade level or curricular area. In this latter case just involving the staff that is to use the materials is effective. However, if one wishes to introduce a new system of education that contains elements of administrative organizational change, then a different approach is needed. This requires that all individuals of a staff take part in the introduction and training in the new approach. Each individual will have some responsibility for making it operational and in knowing the goals and objectives of the approach. Some members of the staff would have the most general instruction and others a detailed explanation and opportunity to become fully competent in using the materials

with children. This suggests that for a profound change to take place in a school system each person must understand the reasons for adoption, his personal responsibility in respect to the new technique, and be trained in specific competencies if it is to be successful. Not to follow this pattern of training involves the risk of having the idea or new system rejected by the staff.

III. THREE INTER DISTRICT SPECIAL EDUCATION COOPERATIVES BE FORMED

This recommendation would support the operation of three inter district special education cooperatives in Northeast Minnesota, They would be located in the area of the West Range, East Range, and the Duluth/Cloquet area.

The specific school districts recommended for each cooperative are included in Chapter II. The advantages of initially forming these cooperatives are many. First, a leadership person could be employed by each unit to direct program development, determine needs and establish priorities, recruit additional staff, and coordinate services and pupil record keeping. He would also be responsible for referral to other resources within the region and the state. Problems relating to reimbursement, teacher certification, reports and forms might also come under his jurisdiction.

Educational, programs that provided for a continuity of curriculum could be better developed using the larger population

base. This is especially true in the case of smaller school districts and for children with the low incidence handicapping conditions. It is apparent that for some handicapping conditions the number of children will be too small to consider quality programs within a single cooperative. For these children, the inter district cooperatives will have to look to larger organizational structure to develop and maintain these educational programs.

It is at this point that the regional intermediate special education district becomes essential. The base populations and resources of any reasonable cluster of schools does not allow for specialized services and planning for every handicapped child who resides within the inter district cooperative. Only through an organization that encompasses a larger population and economic base can appropriate planning and resource development be undertaken,

IV. A STUDY TO CONSIDER THE ESTABLISHMENT OF COMPREHENSIVE SPECIAL EDUCATION SERVICES FOR COOK, LAKE AND KOOCHICHING COUNTIES BE INITIATED

It is recommended that these three counties of Northeast Minnesota be treated as having characteristics that are unique for developing program models. The present study did not have the resources to undertake an analysis of these areas. Distances

between populated communities and school districts are great even in comparison to the remainder of the region. Little is known about exact numbers of children, their unique educational problems, and the severity of the difficulties they present. While the incidence figures are similar to the rest of the area (see Chapter II), the potential for services in these areas are more difficult to assess.

Other states with similar problems have used teams of itinerant specialists as well as mobile vans equipped for specific purposes. It is interesting to note that the RAND Council of Northeast Minnesota has recently put into operation a van that serves essentially the same function. It can be envisioned that under the intermediate unit discussed in another recommendation, needed services? and consultant help could be coordinated and dispensed through such a unit.

However, for the immediate future it appears that these dis tricts must develop service systems within their own organizations. This would not and should not preclude assistance and pupil placement options from the educational units with more resources. Nonetheless, there are planning difficulties for comprehensive programming for handicapped children in these counties that require further study.

V. THE DULUTH SPECIAL EDUCATION PROGRAM BE DEVELOPED AS A CENTER FOR LOW INCIDENCE AND SEVERELY HANDICAPPED CHILDREN

One of the major trends in programming for all handicapped children is the movement away from long term residential facilities. This concept extends to the trainable retarded children as well as to children with severe visual, severe hearing, and other problems. The dehumanization that so frequently takes place in the socio-psychological realm of institutions often negates the academic gains. Institutions are also far more expensive to operate than are other child care services. It is these variables that prompt this recommendation.

The city of Duluth has educational programs for low incidence handicaps such as blind and partially sighted, deaf and hard of hearing, physically handicapped, and residential and day centers for emotionally disturbed children. In addition, Duluth also has other programs for severely retarded individuals.

Planning should proceed to expand the number of foster homes that could serve pupils on a five day a week, school year calendar. This would allow more children to be educated in a specialized program but still be close enough to his home so that family relationships could be maintained. The exception to this recommendation would be in the area of the trainable mentally retarded. Area programs in conjunction with the proposed intermediate special

education district should be developed. Trainable retarded children, while representing a low incidence handicap, are found in sufficient numbers in Northeast Minnesota to suggest such programs. Also training programs for these children can be developed without the intensive support services needed for programs to serve multiply handicapped children. Teachers and other essential personnel needed to conduct such programs at the inter district level are available.

VI. SPECIAL PUBLIC SCHOOL TRAINING CENTERS SHOULD BE ESTABLISHED FOR TRAINABLE MENTALLY RETARDED CHILDREN

This recommendation is made with the conviction that the research findings of recent years indicate that most trainable retarded children who remain in their home communities have greater potential for a meaningful contributing life (Dunn, 1963). Like all generalizations the above statement has exceptions but the overall findings support the contention that institutionalization of trainable retarded children is neither in their best interest nor that of society. However, for trainable retarded children to profit from training and community level care certain quality factors must be inherent in the programs they attend.

Quality programs for the trainable mentally retarded, with a few exceptions, are not available in Northeastern Minnesota.

Quality as defined for day educational and training services for trainable school age children implies the presence of a number of criteria. Among these are

(1) full time trained leadership;

(2) a developmental and sequential curriculum;

(3) organized staff development programs tailored to meet the needs of staff who work with the trainable retarded;

(4) a carefully defined differentiated staffing pattern;

(5) enough children to group according to age and ability in an effective manner;

(6) a system of articulating placement and parent education with existing resources, including day care centers, sheltered workshops, parent associations, and medical resources;

(7) specially designed facilities necessary to the unique instructional and training needs of these children;

(8) availability of a wide array of specialized materials and equipment; and

(9) specialized transportation resources.

In Northeastern Minnesota, none of the existing programs achieve all or even most of these quality control criteria.

Generally, public school programs for trainable children have developed to serve particular communities or locales, and have developed primarily, with the exception of Duluth, as small single units of one teacher, a classroom, and somewhere between five and ten students.

At this time, there are 14 trainable classes in Northeast Minnesota. Six of these are in Duluth, five on the Range, and nine are located elsewhere in the area (see Appendix C). Most of these programs are single class units.

Although these programs do not achieve the previously stated quality control criteria, two points should be made quite clear. First, Northeast Minnesota is not entirely alone in this pattern of development. The single class organizational pattern is quite typical throughout Minnesota and other parts of the Nation. Second, many of these programs, although small units, are of high quality considering the built-in limitations of the single class approach and have made significant contributions to many families and children over the past few years. The experiences many school administrators and teachers have gained in serving trainable children will be quite valuable in any effort to move to more effective programming.

There are, in actuality, two primary problems related to current regional services for trainable children. One of these is program quality and the other is lack of equity in the availability

of service. In speaking to the latter, there are currently 131 trainable children being served by Northeast Minnesota. The incidence study of handicapped children in Northeast Minnesota, as documented in Chapter II, reveals approximately 249 children in need of service. Obviously, additional program service is needed if all trainable children in this area are to receive school services.

It is clear that significant and long range solutions to the provision of quality education and training for all trainable retarded children in Northeast Minnesota will not be achieved by depending on development of additional single classes or on slight upgrading of current resources. The recommendation which this study supports states that "Special regional day educational and training centers should be established..." The intent of this recommendation is that, with a few exceptions in very isolated geographical settings, all existing school resources for the trainable mentally retarded should be organized and focused into three well planned and staffed educational and training centers for the school age trainable mentally retarded child. Each of these centers should be staffed and designed as a special inter district school resource with 20-100 children and should serve broad regional areas. Although it is beyond the abilities of this study to specify specific locations for these centers, it would seem that possible logical locations would be:

(1) The Grand Rapids area, serving all of Itasca County and contingent areas.

(2) The Virginia area, serving the East Mesabi Range, the Vermillian Range area, some areas of rural St. Louis County, and other adjacent areas.

(3) The Greater Duluth Area within daily transportation distance. Because of distance from these centers, the International Falls and the Silver Bay - Grand Marais areas would probably have to maintain single class units,

In order to proceed toward implementation of this recommendation, the following steps are suggested:

(1) An ad hoc Northeastern Minnesota planning council for school services to the trainable retarded should be appointed by the SERC to study the feasibility of this recommendation, and to suggest specific steps necessary to its implementation.

(2) A full time planner should be assigned to the SERC for one year to act as a consultant to this ad hoc council, and to develop the specific plans to establish centers on a total regional basis. Funding for this person could possibly be obtained from foundations, Title VI, or other resources.

APPENDIX A

PART I: SPECIAL EDUCATION SURVEY
DESCRIPTIONS OF HANDICAPPED CHILDREN

PART II: SPECIAL EDUCATION SURVEY FORM

APPENDIX A[a]

PART I

SPECIAL EDUCATION SURVEY
DESCRIPTIONS OF HANDICAPPED CHILDREN

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Introduction

The purpose of this survey is to identify handicapped children in your community who may be in need of special education services. You are being asked to provide the names of such persons (preschool through 19 years) and to indicate the nature of the handicapping condition(s) on the Special Education Survey Form. The major categories of handicapping conditions represented on the form are presented below.

(1) Mental Handicap - Trainable and Severely Mentally Retarded (Severe)
(2) Mental Handicap - Educable Mentally Retarded (Mild/Moderate)

(3) Physical Handicap - Orthopedically Impaired

(4) Physical Handicap - Health Impaired

(5) Speech Handicap

(6) Hearing Handicap - Deaf (Severe)
(7) Hearing Handicap - Hard of Hearing (Mild/Moderate)

(8) Visual Handicap - Blind (Severe)
(9) Visual Handicap - Partially Sighted (Mild/Moderate)

(10) Emotionally Disturbed/Socially Maladjusted
See p. 5 for special instructions.

(11) Special Learning Difficulties
(12) Multiple Handicaps - presence of two or more severe handicaps of major educational significance (e.g., deaf-blind children).

To assist you in identifying children in need of special education services, brief descriptions of the characteristics most associated with each handicapping condition are provided on the following pages.

[a] The material in Appendix A should not be reproduced without the expressed permission of the authors.

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Special Education Survey Form

Type of Handicap	Description
1. Mental Retardation (Trainable) - Severe	Intellectual Functioning -Learns at 1/4 to 1/2 the rate of normal child. -Substantially below average on measures of general intelligence (IQ between 25 and 50). -Generally unable to acquire rudimentary academic skills. -Capable of developing simple self-help skills, socialization, oral language. Language Facility -Very high prevalence of serious speech defects. -Very immature speech skills - poorly developed language. General Behavior -Requires supervision. -Generally has very poor motor coordination. Prognosis - Employment prognosis: Unable to maintain themselves independently. Others -Slow in learning to walk, talk, feed themselves, and develop toilet habits. -Physical health may be below that of normal children. -Often displays concomitant physical deviations.

Special Education Survey Form

Type of Handicap	Description
2. Mental Retardation (Educable) - Mild/Moderate	Intellectual Functioning -Below average functioning on on general intelligence test (IQ between 50 and 80). -Learns at 1/2 to 3/4 the rate of normal child. -Capable of eventually attaining academic skills equivalent to average fourth or fifth graders. -Difficulty in understanding and following directions. -Forgets quickly (directions, etc.) -Difficulty in dealing with tasks involving abstract reasoning. -Scores on academic achievement tests two or more years below grade level (lowest 25% in achievement). Language Facility -Immature speech patterns - may be high prevalence of speech defect. General Behavior -Socially segregated by classroom peers. Prognosis -Employment prognosis: Majority can be expected to maintain themselves independently.
Physical Handicap - Orthopedically Impaired	Posture -Limping or awkward body posture . -Poor body posture or alignment. Fine Motor Control - Tremors of hands.

Special Education Survey Form

Type of Handicap	Description
3. (continued)	Large Motor Control -Poor motor control or inco-ordination. -Motor disturbances and tense incoordination such as jerky spasmodic movements, trembling. -Slow, writhing movements. -Swaying and staggering. Other -Uses hand, arm, or leg brace. -Walks with cane. -Uses crutches for walking. -Uses wheelchair assisted or unassisted. -Tires or fatigues quickly. -Sits in special chair. -Swallowing difficulties. -Limps, lurches in walking. -Difficulty in controlling saliva. -Slurred speech.
4. Physical Handicap Health Impaired	General -Often experiences prolonged convalescence in hospital, etc. -Tires, fatigues quickly. -On regular medication. -Partial or complete control of seizures. -Skin eruptions. Medical Conditions -Rheumatic fever. -Heart defect. -Tuberculosis. -Allergies. -Chronic infection(s) - cystic fibrosis, nephrosis. -Hepatitis. -Malnutrition. -Diabetes. Asthma.

Special Education Survey Form

Type of Handicap	Description
5. Speech Handicap	-Presence of unintelligible speech. -Discordant pitch, raspy hoarseness, uneven pitched, or excessively loud or soft voice. -Cleft palate (unrepaired). -Labored, indistinct, slurred, or distorted speech. -Stuttering (uncontrolled rhythm) . -Articulation problems, beyond 8 years of age - substitutions, omissions, distortions, additions, etc. -Delayed speech - undeveloped speech for child's age, not traceable to mental retardation. -Lisping.
6. Hearing Handicap (Deaf) - Severe	Physical -A hearing loss of about 65 decibels intensity or greater on a standard audio metric test. Language and Speech -Unusual voice quality, voice intensity, and/or faulty articulation . -Marked delay in age of speaking. -Learns to speak via visual, cutaneous, and kinesthetic senses. General Behavior -Close scrutiny of a speaker's face to gain clues to meaning. -Apparent chronic inattention. -Frequent failure to respond when spoken to. Others -Apparent retardation in school subjects despite adequate intelligence. -Must depend on visual and other than auditory senses for education.

Special Education Survey Form

Type of Handicap	Description
7. Hearing Handicap (Hard of Hearing) Mild/Moderate	Physical -A hearing loss of about 35 to 60 decibel intensity or greater on a standard audiometric test. Language and Speech -Unusual voice quality or intensity. -Can learn to acquire speech skills partially through the use of residual hearing. -Ability to understand speech only when the speaker is close. -Omission of certain sounds from speech. -Ability to hear more speech than is understood. General Behavior -Apparent chronic inattention. -Frequent failure to respond when spoken to. Others -Apparent retardation in school subjects despite adequate intelligence. -Requires special auditory training to acquire speech through hearing.
C. Visual Handicap (Blind) - Severe	Physical -Visual impairment so pronounced that person is unable to learn to read using printed materials. -Vision that is poorer than 20/200 in the better eye after correction. -Crossed eyes or involuntary oscillation of the eyeball(s). -Chronic eye irritations - watery eyes, red-rimmed, encrusted, or swollen eyelids.

Type of Handicap	Description
8. **(continued)**	General Behavior -May run into objects not directly in the field of vision. -May exhibit unusual repetitive activities such as rocking, rubbing the eyes, twisting, and bending the head forward. Others -Uses braille for reading material - i.e., cannot be educated via vision. -Employs auditory, tactual, and kinesthetic senses to learn.
9. Visual Handicap (Partially Sighted) - Moderate	Physical -Vision that is between 20/70 and 20/200 after correction. -Crossed eyes or involuntary oscillation of the eyeball(s). -Undue sensitivity to normal light levels. -Complains of visual blurring. -Eyas excessively irritable following prolonged close visual work. **-Can read only for short periods of time.** -Blinks excessively, especially while reading. General Behavior -Holding written materials or objects abnormally near (or far) from the eyes. -Running into objects not directly in the field of vision. -Shuts or covers one eye when reading. -Abnormally inattentive during chalkboard, etc., work. Others -Able to read (or learn to read) large print materials or regular reading materials under special conditions.

Special Education Survey Form

Type of Handicap	Description
10. Emotionally Disturbed/ Socially Maladjusted Note ; Diagnosis of a handicap should be made in this category only if the child displays most of the characteristics under one or more of the major clusters of behavior problems, i.e., general behavior, conduct or problem behavior, personality disorder , social maladjustment. Under "Comments", circle the "symptom clusters" which best describe the child's behavior.	General Characteristics - Sluggishness, lethargy. -Sucks thumb or finger. -Bites nails or fingers. -Jitteriness , jumpiness. -Nervous reactions, such as picking, scratching, restlessness. -Compulsiveness for routine. -Pronounced changes in mood. -Chronic physical complaints. Conduct Problem Characteristics -Attention-seeking, disruptive, show-off behavior. -Hyperactive, restlessness, unable to sit still. -Fights excessively with other children. -Temper tantrums. -Frequently disobedient - difficult to discipline, - Uncooperative, especially in group settings. -Destructive of his own and/or others property. -Negative - tendency to do the opposite of what is expected. -Hot-tempered and irritable. Personality Disorder -Doesn't know how to have fun; behaves like a little adult. -Self-conscious and easily embarrassed. -Feels inferior to other children. -Prefers solidary activities - withdraws from peers and adults. -Hypersensitive feelings - feelings easily hurt. -Easily confused.

Special Education Survey Form

Type of Handicap	Description
10. (continued)	-Chronic anxiety - jumpy, irritable, poor appetite, insomnia, tense. -Excessively tense. -Excessively sad and depressed. - Excessive daydreaming. - Pronounced changes in mood. <u>Social Maladjustment</u> -Infrequent trouble with the law. -Defiance to authority. -Steals. -Loyal to delinquent friends. - Excessive truancy from school. -Belongs to an organized gang. -Defies and violates broad cultural and social values. -Excessively aggressive and hostile. -Destructive of property.
11. Special Learning Difficulties	General Characteristics -Marked retardation on one or more academic areas without a general intellectual deficit. *(1/2* year in 1st grade; 1 year in 2nd grade; *1 1/2* years in 3rd grade; 2 years at end of 4th and above). -Poorer verbal performance abilities - a discrepancy between learning "potential" (intelligence) and achievement. General Behavior -Short attention span - distractable, hyperactive. -May have a neurological impairment .

Type of Handicap	Description
11. (continued)	Physical -Visual-perceptual problems. -Poor motor coordination. -Auditory perceptual problems (discrimination of likenesses and differences, memory, etc.). -Poor visual-motor abilities (copying tasks, etc.). Reading -Inability to synthesize sound units. -Inability to recognize the meaning of a word or a phrase. -Reversing word and letter orders. -Reads in choppy, word-by-word manner. -Commonly repeats words and phrases in reading. -Poor auditory and visual memory for words, etc. Writing -Writing, printing, and drawing, poor compared to oral work. -Writing distorted or reversed letters. -Confusing order of letters. -Inability to recall visual word patterns. -Inability to analyze the word into constituent sounds or to retain them in correct order. -Failure to punctuate accurately. Math -Poor understanding of basic arithmetical processes, vocabulary, etc.

Special Education Survey Form

Type of Handicap	Description
12. Multiple Handicap Note: Use only if the child's condition cannot be described adequately by the previous categories.	•Deaf/Blind -Deaf/Retarded - Blind/Retarded -Deaf/Severe Cerebral Palsy -Blind/Severe Cerebral Palsy - Etc.

PART II

CONFIDENTIAL

Special Education Survey Form

Robert H. Bruininks
Richard F. Weatherman
University of Minnesota

Child's Name _____ Birthdate _____
Last First Middle Da Mo Yr

Home Address _____ School Dist. _____

Parent's or Guardian's Name _____
Last First Middle

Mother's Maiden Name _____
Last First Middle

Address _____ Date _____

Rater's Name _____ Position _____

Address _____

Student's Code Number _____

For Project Staff Only

Place the code number of the handicapping condition into the "major" or "other" categories which appear below. Indicate the extent of service for each handicapping condition, placing numbers for complete (1), extensive (2), supplementary (3), and none (4) in parentheses. (Example: Major handicap - speech impaired, complete treatment 5 (1).)

Major _____ Other(s) _____

_____

_____

_____

_____

Instructions

The following instructions should be followed in checking the appropriate sections of the Special Education Survey Form.

(1) Each child you identify may present a variety of handicaps of educational significance. Under "Degree of Handicap", however, check (X) only one category as the major handicapping condition. In making judgments, endeavor to identify the handicap as "major" which is of greatest educational significance to the child. All additional handicaps should be checked (X) in the column labeled "other". Thus, each child is considered to possess only one major handicap, but may still present more than one handicap. As an example, James Doe could have the following handicaps:

Severe Mental Retardation
Cerebral Palsy
Speech Impediment — Stuttering

The handicap of greatest educational significance would be mental retardation (major). While the other handicaps might also be severe, they would nonetheless be rated as "other" handicaps.

(2) Please attempt to estimate the extent of special education service(s) each child would require, whether the handicap has been given a major or other rating. Use the following definitions in making these estimates:

(a) Complete - child requires 24 hour care and/or instruction in a hospital, institutional, or clinic setting. The child may require this service on a long-term basis.

(b) Extensive - child receives services in a special education setting within the immediate or surrounding community. Perhaps 60 to 95 percent of the child's time is spent in a special education setting. These services might also include assistance and/or training under services provided by the State Division of Vocational Rehabilitation.

(c) Supplementary - child attends a regular class room for most of the day, but needs supplementary special instructional services. These services might also include assistance and/or training under services provided by the State Division of Vocational Rehabilitation.

(d) None - child's handicap does not require special education services, i.e., he can get along perfectly well in a regular class without any outside help from the school.

(3) Please provide the above information on handicapped persons even if they are presently receiving residential service outside of their home community, e.g., Cambridge State Hospital, Faribault State Hospital, Etc.

(4) Any comments you could provide to further describe the nature of the child's problem, as well as his educational service needs, would also be appreciated.

We believe the information derived through the survey will be of great assistance to state and local school personnel in planning educational services for handicapped children in this region of the state. Thank you for your participation in this survey.

CONFIDENTIAL

Special Education Survey Form

Robert H. Bruininks
Richard F. Weatherman
University of Minnesota

Type of Handicap	*Description	Degree of Handicap: Major	Degree of Handicap: Other	Amount of Service Needed: Con.(1) Ext.(2) Supp.(3) None(4)	Comments
1. Mental Retardation (Trainable)-Severe Note: Place persons with more profound mental retardation in this category (i.e., IQ is below 25). Describe the nature of the person's condition under "comments"	IQ between 25 and 50. Learns 1/4 to 1/2 rate of normal child. Unable to acquire literacy skills (beyond 2nd grade). Unable to maintain themselves independently.				
2. Mental Retardation (Educable)-Mild/Moderate	IQ between 50 and 80. Learns 1/2 to 3/4 rate of normal child. Can learn academic skills to 4th grade level. Capable of mairtaining themselves independently.				
3. Physical Handicap Orthopedically Impaired	Poor motor control/coordination. Poor posture. Inability to travel without use of mechanical devices (canes, etc.). Tires quickly.				
4. Physical Handican Health Impaired	On regular medication. Partial/complete control of seizures. Serious medical condition - limits activity (asthma, etc.)				
5. Speech Handicap	Unintelligible speech. Unpleasant pitch and/or volume. Stutters. Articulation difficulties.				

Type of Handicap	*Description	Degree of Handicap Major	Degree of Handicap Other	Amount of Service Needed Com.(1) Ext.(2) Supp.(3) None(4)	Comments
6. Hearing Handicap (Deaf)-Severe	Hearing loss of about 65 decibels or greater. Unusual voice quality. Learns to speak via non-auditory senses.				
7. Hearing Handicap (Hard of Hearing)--Moderate	Hearing loss of about 35 to 60 decibels. Can use residual hearing to acquire speech. Understands speech only when speaker is close.				
8. Visual Handicap (Blind)--Severe	Uses braille to read. Vision poorer than 20/200 after correction. Learns via non-visual senses.				
9. Visual Handicap (Partially sighted)-Moderate/Mild	Vision between 20/70 and 20/200 after correction. Requires special conditions (large print, lighting) to read printed materials . Can read only for short periods.				
** 10. Emotionally Disturbed/ Socially Maladjusted	(a) Immature behavior - thumbsucking, nail biting, picking, scratching. Excessively compulsive for routine. Lethargic. (b) Disruptive-"show-off", fights. Destructive of property. Temper tantrums, negative				(a) General (b) Conduct Problem

- continued -

Special Education Survey Form

Type of Handicap	*Description	Degree of Handicap Major	Other	Amount of Service Needed Com.(1) Ext.(2) Supp.(3) None(4)	Comments
-continuation-					
10. Emotionally Disturbed/ Socially Maladjusted	(c) Feels inferior to peers and others. Excessively tense. Excessive daydreaming. Extreme withdrawal from peers, etc.				(c)Personality disorder
	(d) In trouble with law. Destructive of property. Excessive transiency.				(d)Social maladjustment.
11. Special Learning Difficulties	Retardation in academic subjects without general intellectual deficit (IQ above 80) Poor memory and/or perceptual abilities. Poor in reading, writing, math skills--significantly below grade level.				
*** 12. Multiple Handicaps (Combinations of severe handicaps of major educational significance. Please add description of the person's condition under "comments".)	Examples: (a) Deaf/Blind (b) Deaf/Retarded (c) Blind/Retarded (d) Deaf/Severe Cerebral Palsy (e) Blind/Severe Cerebral Palsy (f) Etc.				

* See "Descriptions of Handicapped Children" for more complete explanation of each handicapping condition.

** See page 5 of the "Descriptions of Handicapped Children" for special instructions.

*** Note: Use only if the child's condition cannot be described adequately by the previous categories. Please provide a brief description of the child's problems under "Comments".

APPENDIX B

LISTING OF PUBLIC SCHOOLS, PRIVATE SCHOOLS, PUBLIC AGENCIES AND PRIVATE AGENCIES WHO PARTICIPATED IN THE SURVEY

State Offices

Special Education Section of the State of Minnesota Department of Education.

Department of Public Welfare

State Services for the Blind State
Services for the Deaf State
Crippled Children's Services

Public Schools

Aurora
Babbitt
Barnust
Biwabik
Bovey
Buhl
Carlton
Chisholm
Cloquet
Coleraine
Cromwell
Deer River
Duluth
Ely
Esko
Eveleth
Floodwood
Gilbert
Grand Marais
Grand Rapids
Hermantown
Hibbing
International Falls
Moose Lake
Mt. Iron
Nashwauk-Keewatin
Pengilly
Proctor
St. Louis County-Unorganized
Silver Bay
Tower-Soudan
Two Harbors
Virginia
Wrenshall

Private Schools

Duluth

Duluth Cathedral (Seventh Day Adventist)
Holy Rosary
Sacred Heart
St. Anthony
St. James
St. Jones
St. Lawrence
St. Michael
West End Parochial

Cloquet

Our Lady of the Sacred Heart

Appendix B (continued)

Private Schools

Proctor

St. Rose of Lima School

Department of Welfare Offices

Carlton County
Cook County
Duluth Grand
Marais
Itasca County
Koochiching County
St. Louis County
Two Harbors

Other Public Agencies

Day Activity Center, Coleraine
Day Activity Center, Cloquet
Day Activity Center, Duluth
Day Activity Center, Eveleth
Day Activity Center, International Falls
Duluth Mental Health Clinic
Mental Health Center, Grand Rapids
Public Health Department, Itasca County
Public Health Department, Koochiching County
Public Health Department, St. Louis County
Range Day Activity Center, Chisholm
Range Mental Health Center, Virginia

Private Agencies

Association for Retarded Children, Duluth
Itasca County Nursing Service United
Cerebral Palsy, Duluth

In addition to the above schools and agencies, numerous professional and lay persons contributed names of children considered to be in need of special education services. The extensive information and assistance given by county school health nurses is particularly acknowledged.

APPENDIX C

SPECIAL EDUCATION SERVICES

NORTHEAST MINNESOTA: 1969-70

CARLTON COUNTY

District	Program	Teacher	Level	Case Load
BARNUM	Speech	James LaFond	Elementary	Not to exceed 70
	E.M.R.	Esther Swanson	Elementary	16 students
CARLTON	Speech	Teresa Polga		29 caseload
	E.M.R.	Ida Oswell	Elementary	6 students
	S.L.D.	Florence Maher	Elementary	15 students
CLOQUET	Speech	Roger Tostrup		79 caseload
	E.M.R.	Gary Welton	Jr. Hi.	12 students
		Paul Mitchell	Sr. Hi.	7 students
		John Goodell	Elementary	11 students
	H.I.	John Goodell	Elementary	1 student
		Rose Kaner	Elementary	1 student
CROMWELL	E.M.R.	Hazel Pecha	Jr.,Sr.Hi.	10 students
		Helen Benson	Elementary	8 students
MOOSE LAKE	Speech	Phyllis LaFond		Not to exceed 70
	S.L.D.	Ruth Zwickey	Sr. Hi.	6 students
		Jeanette Doherty	Sr. Hi.	6 students (½ time for each teacher for same 6 children)
ESKO	Speech	Teresa Polga		Not to exceed 70
WRENSHALL	Speech	Teresa Polga		Not to exceed 70

COOK COUNTY

GRAND MARAIS	Speech	Polly Ross		20 caseload
	E.M.R.	Hazel Jackson	Elementary	6 students
		Ray Rasmussen	Jr., Sr.Hi.	11 students
	S.L.D.	Luana Brandt	Sr. Hi.	11 students
COLERAINE	Speech	Stanley Shock		77 caseload
	E.M.R.	Anna Olson	Elementary	10 students
	T.M.R.	Heleen Hendrickson	"	9 students
	H.I.	Lillian Flick	Elementary	1 student
	Vis. I.	Phyllis Ziska	Jr., Sr.Hi.	5 students

E.M.R. = Educable Mentally Retarded
T.M.R. = Trainable Mentally Retarded
H.I. = Hearing Impaired
Vis. Im. = Visually Impaired
S.L.D. = Special Learning Disabilities
Mult. H. = Multiply Handicapped

(continued)

District	Program	Teacher	Level	Case Load
	S.L.D.	Judith Amato	Elementary	3 students
		Elizabeth Milton	"	7 "
		Regina Domish	"	1 "
		Marlene Zabel	"	1 "
		Mary Miller	"	3 "
		Lillian Flink	"	5 "
		Ruth Rasmussen	Jr. Hi.	4 "
DEER RIVER	Speech	Mary Streetar		31 caseload + 2 first grade rooms for language development
	E M.R.	Mary Mullen	Elementary	8 students
GRAND RAPIDS	Speech	Suzanne Bounds		50 caseload
		Eileen Just		65 "
		Eileen Sobolik		65 "
		Kathleen Simons		16 "
	E.M.R.	Ellen Korpi	Elementary	14 students
		Victoria Lang	Sr. Hi.	15 "
		Evelyn LaBeau	Jr. Hi.	12 "
		Joelle Pintar	Elementary	15 "
	T.M.R.	Olga Henderson	Jr. Hi.	9 "
	S.L.D.	Nadine Martin	Elementary	10 "
		Mabel Moren	"	15 "
		David Monroe	"	12 "
		Shirley Nicholas	"	9 "
NASHWAUK-KEEWATIN	Speech	Richard Larson		9 caseload
		Stan Shock		20 "
	E.M.R.	Dale Newstrom	Sr. Hi.	14 students
		Margaret Matosich	Elem.	12 "
		Marykutty Philip	Jr. Hi.	14 "
		KOOCHICHING COUNTY		
INT'L FALLS	Speech	Roger Geddes		42 caseload
	E.M.R.	Frances Bray	Elementary	1 student
		Doris Hammond	"	14 "
		Helen Williams	"	14 "
		Helen Caswell	Jr. Hi.	13 "
	T.M.R.	Mary Norton	Jr. Hi.	7 students
	H.I.	Olive Paul	Elementary	2 "
	S.L.D.	Lois Rohl	"	3 "

LAKE COUNTY

District	Program	Teacher	Level	Case Load
TWO HARBORS	Speech	Jeanne Thompson		36 caseload
	E.M.R.	Elna Cole	Elementary	7 students
		Nat Sando	Jr.,Sr.Hi.	17 "
	T.M.R.	Maribeth Hassett	Elementary	8 "
	S.L.D.	Joan Gunsolus	"	15 "
		Lila Schwartz	Jr. Hi.	24 "
SILVER BAY	E.M.R.	Larry McCord	Sr. Hi.	13 "
	S.L.D.	Muriel Lunch	Elementary	9 "
		Mary Swanson	Jr. Hi.	6 "
		Harriet Pope	Elementary	16 "
		Joanne Guillaume	"	15 "
		Joan Arola	Jr. Hi.	7 "

ST. LOUIS COUNTY

AURORA	E.M.R.	Ione Ault	Elementary	8 students
BABBITT	E.M.R.	Sharon Gary	"	7 "
		Sharon Gary	Jr. Hi.	5 "
BIWABIK	Speech	Orlo Hjelseth		56 caseload
	T.M.R.	Edith Fulgham	Sr. Hi.	13 students
BUHL	T.M.R.	Loretta Seppi		
CHISHOLM	Speech	Rose Danks		68 caseload
	E.M.R.	Larry Binder	Jr. Hi.	8 students
	H.I.	Mara Sellars	Jr. Hi.	1 student
	Vis.I.	Warren Doesken	Sr. Hi.	1 "
		Stanely Kuberka		1 "
	S.L.D.	Dorothy Johnson	Jr. Hi.	7 students
		Ragna Jacobsen	"	6 "
		Lois Mehle	Elementary	4 "
		Marie Jarvey	"	6 "
		Sidna Hirstio	"	6 "
		Alice Tomfohr	"	6 "
DULUTH	Speech	Janet Bergal		53 caseload
		Margaret Wilson		28 caseload
		Eugenia Dixon		15 caseload
		Dorothy Pevach		48 caseload
		Judith Passon		23 caseload

(continued)

District	Program	Teacher	Level	Case Load
		Raymond Korby		39 caseload
		Ann Dansinger		67 "
		Bernice Blustin		29 "
		Linda Shields		49 "
		Marianne Rheinberger		25 "
		Kathleen Fogelberg		50 "
		Margaret Hart		30 "
		Barbara Pierce		38 "
	H.I.	Gwen Fisher	Nursery	4 students
		Mary Larson	Pre-prim.	4 "
		Barbara Soderberg	Elem.	6 "
		Wayne Gustafson	"	7 "
	Vis. I.	Dorothy Morkved	"	5 "
		Natalie Hanson	Jr. Hi.	8 "
	Mult. H.	Robert Risch	Elem.-Jr.Hi.	7 "
		Lavera Carlson	Elementary	8 "
	E.M.R.	Mildred Bergstrom	"	8 "
		Sally Johnson	"	11 "
		Ruth Hellman	"	11 "
		Genevieve Rockwood	Jr.Hi.	15 "
		Olga Haworth	Jr.Hi.	9 "
		Ann Bronoel	"	13 "
		Florence Sander	Elementary	12 "
		Pansy Currier	"	11 "
		Edna Fox	"	10 "
		John Hardy	Jr. Hi.	16 "
		Vivian Drawz	Elementary	11 "
		Esther Torp	Jr. Hi.	14 "
		Evelyn Davis	Elementary	8 "
		David Smolnikar	Jr. Hi.	15 "
		Gertrude Swendsen	"	14 "
		Ronald Lemire	"	16 "
		Ruth Dishington	Elementary	10 "
		Richard Kostama	"	13 "
		Donald Smith	"	13 "
		Louise Schade		
		David Sullivan	Sr. Hi.	49 "
		Dina Lien		
		Martin Anderson		
		Marjorie Anderson	Work	
		Lawrence Anderson	Training	41 "
		Kenneth Kilgore	Center	
		Duane Radulovich		
	T.M.R.	Helen Nelson	Elementary	11 "
		Helen Carter	"	10 "
		Charles Hanson	"	10 "
		Arleen Laroque	"	10 "

(continued)

District	Program	Teacher	Level	Case Load
		Mae Mutch	Elementary	10 students
		Beatrice Johnson	"	9 "
	S.L.D.	Margaret Ringsred	"	10 "
		Laila Johnson	"	6 "
		Goldie Eldot	"	15 "
		Marilyn Lilya	"	5 "
		Margaret Johnson	"	3 "
		Iris Berquist	"	20 "
		Marie Biele	"	3 "
		Karen Holtz	"	17 "
		Jo Larson	"	12 "
		Helmie Peterson	"	9 "
		Pearl Olson	"	8 "
		Henry Pederson	"	8 "
		David Halstead	"	7 "
		Diane Cooper	"	6 "
		Judith Gillen	"	5 "
		Mildred Burgess	"	7 "
		Shirley Baldwin	"	8 "
		Altah Beckett	"	9 "
		Peter Bergman	"	9 "
		LeRoy Henderickson	"	8 "
		Henrietta Granquist	"	6 "
		Mary Patterson	"	8 "
		Carol Bacig	"	6 "
		Aili Butchert	"	3 "
		Carol Maki	"	6 "
		Gladys Wallin	"	6 "
		Emma Taro	"	9 "
		Margaret Rich	"	5 "
		Mary Gressman	"	5 "
		Georgia Kokotovich	"	7 "
		Norma Hoffbauer	"	9 "
		Agnes Hanson	"	8 "
		Luella Hanning	"	5 "
		Margie Fraser	"	3 "
		Rosemary Kessler	"	6 "
		Mary Olafson	Jr. Hi.	6 "
		Rita Klang	"	7 "
		Mary Hanson	"	6 "
		Miriam Mount	"	4 "
		Susan Emmons	Sr. Hi.	4 "
ELY	Speech	Kathleen Drechsler		35 caseload
	E.M.R.	Phyllis Olson	Sr. Hi.	10 students
		Elizabeth Cherne	Elementary	4 "

District	Program	Teacher	Level	Case Load
	T.M.R.	Zona Johnson	Elementary	6 students
	S.L.D.	Frances Jacobson	Jr. Hi.	10 "
		Helen Hedloff	"	8 "
		Jeanette Vidmar	"	2 "
EVELETH	Speech	Margaret Lysaker		41 caseload
	E.M.R.	Gordon Rodby	Jr. Hi.	13 students
	T.M.R.	Hazel Laituri	Elementary	12 "
GILBERT	Speech	Gerald Vito		50 caseload
	E.M.R.	LaVerne Marolt	Elementary	9 students
HERMANTOWN	Speech	Barbara Tostrup		47 caseload
	E.M.R.	Jean Crassweller	"	9 students
	S.L.D.	Nancy Daniels	"	10 "
HIBBING	Speech	Richard Larson		55 caseload
		John Bradovich		52 "
	E.M.R.	Dorothy Connors	Elementary	10 students
		Lucille Erickson	"	2 "
		Cyrilla White	"	6 "
		Myrtle Larson	Jr. Hi.	14 "
	T.M.R.	Mary Jo Primozich	Elem.	7 "
	Vis. Im.	Dorothy Harry	Elem.&Hi.	8 "
	H. Im.	Dale Gibbs	Jr. Hi.	1 "
	S.L.D.	Genevieve Lervik	Elementary	5 "
		Judith Voxland	"	11 "
		Carole Cicmil	"	13 "
		Carol Gornick	"	7 "
		Gaile Drazenovich	"	8 "
		Charlotte Christenson	"	3 "
		David Vik	Jr. Hi.	1 "
MT. IRON	Speech	Genevieve Bennetts		43 caseload
	E.M.R.	William Sauve'	Jr. Hi.	11 students
		Donna Johnson	Elementary	8 "
VIRGINIA	Speech	Loren Magsam		75 caseload
	E.M.R.	Mary Ahlin	Sr. Hi.	12 students
		Ada Bertelson	Elementary	9 "
		Janet Skinner	"	11 "
	H.I.	Ann Pagnucco	Pre-prim.	4 "
	S.L.D.	Thelma Rash	Elementary	11 "
		Irene Wiklund	"	14 "

(continued) District

Program	Teacher	Level	Case Load
	Sandra Johnson	Elementary	8 students
	Shirley Selseth	"	8 "
	Betty Bostic	Sr. Hi.	28 "
	Audrey Koons	Jr. Hi.	17 "
	Nancy Nyberg	Elementary	7 "
	Mary Paschke	"	5 "
	Bonnie Rogers	"	10 "
	Dorothy Urshan	"	8 "
	Barbara Omarzu	Sr. Hi.	8 "
	Bernice Berlin	Jr. Hi.	12 "
	Laimi Niemi	Elementary	7 "
	Sylvia Silvola	"	10 "
	Bernadine Christenson	"	6 "
	W.W. Salmi	Jr. Hi.	22 "
	Sharon Harney	"	16 "
	Rita Marks	"	28 "
	Olive Stahl	Elementary	13 "
ST. LOUIS COUNTY UNORGANIZED			
Speech	Lavonne See		65 caseload
	Lorraine Klobuchar		60 "
	John Carlson		64 "
	Kathryn Granquist		29 "
	Jack Banovetz		55 "
S.L.D.	Betty Moe	Elementary	6 students
	Gretchen Halfaher	"	10 "
	Lorraine Erickson	Jr. Hi.	7 "
	Mavis Matson	Elementary	8 "
	Helen Stone	"	9 "
	Miles Holets	"	6 "
	Dorothy Turnbull	"	4 "
	Patricia Robichaux	"	10 "
	Hilda Lahti	"	5 "
	Mary Parzyck	"	10 "
	Edith Hall	"	5 "
	Esther Anderson	"	6 "
	Elizabeth Kozan	"	6 "

Home Hospital - All schools

REFERENCES

American Foundation for the Blind. A teacher education program for those who serve blind children and youth. New York: Author, 1961.

Ashcroft, S.C. Blind and partially seeing children. In L.M. Dunn (Ed.), Exceptional children in the schools. New York: Holt, Rinehart and Winston, 1963. Pp. 413-462.

Balow, B. School Behavior Profile. Minneapolis, Minnesota: University of Minnesota, 1968.

Bond, G.L. & Tinker, M.A. Reading difficulties: their diagnosis and correction. New York: Apple ton-Century-Crofts, 1957.

Connor, F.P. The education of crippled children. In W.M. Cruichshank and G.O. Johnson (Eds.), Education of exceptional children and youth. Englewood Cliffs, N.J.: Prentice-Hall, 1967, Pp. 432-506.

Cruickshank, W.M., and Johnson, G.O. (Eds.). Education of exceptional children and youth. Englewood Cliffs, New Jersey: Prentice-Hall, 1967.

Darling, G.H. Identifying students with special learning needs. Austin, Minnesota: Center for Special Services for Children, 1966.

Department of Education. Administrative manual for Minnesota public schools. St. Paul: Author, 1966.

Department of Special Education. A center for research and development in the education of handicapped children. Minneapolis: University of Minnesota, 1969.

Dunn, L.M. (Ed.), Exceptional children in the schools. New York: Holt, Rinehart and Winston, 1963.

Elliott, C. Special learning disabilities program guidelines and resource manual. St. Paul: Special Education Section, Department of Education, 1969.

Garrison, K.C., and Force, D.G. The psychology of exceptional children. New York: The Ronald Press, 1965.

Hathaway, W. Education and health of the partially seeing child. New York: Columbia University Press, 1959.

Heber, R. A manual on terminology and classification in mental retardation. Williamantic, Conn.: The American Association on Mental Deficiency, 1961.

Hoyt, J.S., and Hanson, J.H. Minnesota's population. Population, number 5, June, 1967. Minneapolis: Department of Agricultural Economist, University of Minnesota, 1967.

Hull, F.M. Speech-impaired children. In L.M. Dunn (Ed.), Exceptional children in the schools. New York: Holt, Rinehart and Winston, 1963. Pp. 285-338.

Johnson, W., Children with speech and hearing impairment. Washington, D.C.: U.S. Office of Education Bulletin, No. 5, 1959.

Kass, C.E. Learning disabilities. Review of educational research, 1969, 39, 71-82.

Kirk, S.A., Educating exceptional children. Boston: Houghton Mifflin, 1962.

Lindquist, E.F., and Hieroniymus, A.N. Manual for administrators, supervisors, and counselors: Iowa Tests of Basic Skills. Boston: Houghton Mifflin, 1964.

Lorge, I., Thorndike, R.L., & Hagen, E., Technical manual: Lorge-Thorndike Intelligence Tests. Boston: Houghton Mifflin, 1966.

Mackie , R.P. , Special education reaches nearly two million children. School Life, 1964 (December).

Mackie, R.P., Spotlighting advances in special education. Exceptional Children, 1965, 32, 77-81.

Neville, D., and Bruininks, R.H., Reading and intelligence. In H.C. Haywood (Ed.), Psychometric intelligence. New York: Apple ton-Century-Crofts, in press.

Pate, J.E., Emotionally disturbed and socially maladjusted children. In L.M. Dunn (Ed.), Exceptional children in the schools. New York: Holt, Rinehart and Winston, 1963. Pp. 239-284.

Peterson, D.R., and Quay, H.C., Behavior Problems Checklist. Champaign, Illinois: University of Illinois, 1967.

Rosenzweig, L.E., and Long, J. Understanding and teaching the dependent retarded child. Darien, Conn.: The Educational Publishing Corp., 1960.

Stam , J.M., Net migration of Minnesota's population. Population, Number 11, June, 1968. Minneapolis: Department of Agricultural Economics, University of Minnesota, 1968.

Telford, C.W., and Sawrey, J.M., The exceptional individual: psychological and educational aspects. Englewood Cliffs, New Jersey : Prentice-Hall, 1967.

Van Riper, C., Speech correction: principles and methods. Englewood Cliffs, N. .: Prentice-Hall, 1963.

Wishik, S.M., Handicapped children in Georgia: A study of prevalence, disability, needs and resources. American Journal of Public Health, 19 56, 46, 195-203.

Wooden, H.Z., Deaf and hard of hearing children. In L.M. Dunn (Ed.), Exceptional children in the schools. New York: Holt, Rinehart and Winston, 1963. Pp. 339-412.