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ABSTRACT

The final report covers activities of the National Regional Resource Center in the area of special education from 1970 through June 30, 1974. Reported is program emphasis on the development of a statewide diagnostic-prescriptive resource system including target classes (which served as data collection points and demonstration classes), self-contained classes (used to test the efficacy of management system of instruction), resource rooms and assessment classes (used to collect information and develop the diagnostic prescriptive model), and the resource data bank (which matched information on materials and methods with specific learning objectives). Specific goals, activities, and results are outlined such as the development of a system for identifying and organizing learning objectives. Final recommendations include continuation and possible revision of the diagnostic prescriptive model, development of a uniform system for the identification and retrieval of special education instructional materials, establishment of a central clearinghouse for processing and evaluating efforts of resource centers, and expansion of inservice education concerning the diagnostic prescriptive process. (DB)

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Final Technical Report

Project No. 48-2919-SC-699
Contract No. OEC-2-70-0051

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National Regional Resource Center of Pennsylvania

September 15, 1974

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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ABSTRACT

The following report covers the period of the initial planning grant of the National Regional Resource Center of Pennsylvania in 1970-71 through the operational phase and termination on June 30, 1974. The report includes activities performed during the grant period and the results of these activities.

Development of the NRRC/P program was statewide and supported strongly by the Pennsylvania Department of Education: Division of Special Education. Federal funds were truly used as "seed money" for large-scale development of a diagnostic-prescriptive resource system.

Target classes were developed in most areas of Pennsylvania. These target classes were used as data collection points as well as development and demonstration classes for a diagnostic-prescriptive model. Self-contained classes were used to test the efficacy of a management system for instruction through the use of instructional objectives and criterion-referenced measurement. Resource rooms and assessment classes were used to collect information and develop the diagnostic-prescriptive model and the SER-LARS resource data bank. The SER-LARS data bank matched usage information on materials and methods and matched them with specific learning objectives. A teacher could use the system to select learning objectives, match these with materials and methods other teachers found successful and then develop a specific prescription with high potential for success.

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This project reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
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GENERAL INFORMATION

The National Regional Resource Center of Pennsylvania (NRRC/P) was developed to provide supportive programs and services for teachers of handicapped children when faced with educational programming problems from pre-school through the completion of formal education programs. This was accomplished by:

- A. Coordinating information about learning objectives, methods, materials, and learning characteristics of handicapped children;
- B. Developing and implementing educational prescriptions to achieve specific learning objectives for handicapped children with identified learning characteristics.
- C. Providing diagnostic and assessment procedures for identifying educationally relevant learning characteristics of handicapped children.
- D. Providing a system to allocate and manage resources committed to accomplish the foregoing.

These supports were provided to teachers of the handicapped in all NRRC/P Service Units. Major thrusts within Pennsylvania were expended in the COMPET (Commonwealth Plan For Education and Training of Mentally Retarded Children) and instructional management systems for teachers of the handicapped.

The teacher of the handicapped is expected to be all things to all children - diagnostician, curriculum development specialist, media expert, researcher, and teacher. This must be recognized for what it is, an all but impossible task. To implement these

expectations, she must be provided with supportive programs and services. These supportive programs and services were needed because:

- A. Coordinating information in useable form about materials, methods, and learning characteristics of handicapped children with specific learning objectives has not been adequately achieved. Unique and divergent needs of handicapped children require more personalized educational programming. This type of programming is dependent upon adequate coordination of information about materials, methods and learning characteristics.
- B. The achievement of specific learning objectives by handicapped children requires individualized or personalized prescriptions. These prescriptions are necessary to design and implement appropriate learning experiences. No concerted effort has been made to date on a national level to formulate, accumulate, and disseminate individualized prescriptions to teachers of handicapped children. The failure to make such prescriptions available implies that the teacher must develop them herself and expend considerable time and effort in the process.
- C. Individualized prescriptions are dependent upon adequate identification of learner characteristics. Measurement of these characteristics is dependent upon diagnostic and assessment procedures. A standardized diagnostic and assessment system is believed necessary to facilitate

uniform specification of learner characteristics. This will allow for better communication among all concerned with the education of handicapped children.

Overall planning and evaluation in accomplishing NRRC/P goals depended upon timely and adequate identification and dissemination of criterion systems performance measures. These measures served as the basis for making decisions about the allocation and scheduling of resources to achieve stated aims.

To adequately serve the region assigned to the NRRC/P, it was felt necessary to provide these supports to all teachers of the handicapped who needed and qualified for them.

To maintain a proper perspective in viewing the operation of the NRRC/P it is essential that the goals of the Bureau of Education for the Handicapped and the goals of Pennsylvania's Division of Special Education are also considered. This is particularly true when relating the functions of the project to the other operating Regional Resource Centers in the nation and the commitment made to provide services throughout the entire Commonwealth of Pennsylvania.

A. Bureau of Education for the Handicapped (BEH) Goals

1. National Commitment

To assure that every handicapped child is receiving an appropriately designed education by 1980 (75% by 1977).

2. Increased Services

To assist the States in providing the appropriate educational services to 75% of the handicapped by 1977.

3. Career Education

To assure that by the year 1977, every handicapped child who leaves school has had career educational training that is relevant to the job market, meaningful to his career aspirations, and realistic to his fullest potential.

4. Manpower Development

To assure that all handicapped children served in the schools (75% by 1977) have a trained teacher competent in the skills required to aid the child in reaching his full potential.

5. Early Childhood Education

To secure the enrollment of 750,000 (75%) preschool aged handicapped children in Federal, State, and local educational and day care programs.

6. Reducing Dependency of the Severely Handicapped

To increase support of programs for deaf-blind children and severely handicapped preschoolers.

7. Reforming Labeling and Placement

To investigate the effects of new and more positive types of child categorization and of current techniques of placing handicapped children in regular classrooms.

8. Development of Meaningful Secondary Education

To increase the number of handicapped children and youth who are receiving secondary, vocational, and continuing education which emphasizes economic and social self-sufficiency.

9. Integration of Health, Education, and Rehabilitation Services

To bring all social systems together in support of the child. Child advocacy models will be expanded to serve other localities and will include the participation of other Federal Agencies.

10. Training of Professional Aides to Assist Teachers

To emphasize special training of professional aides qualified to work with handicapped children, and to encourage training and employment of handicapped persons as associates.

B. Pennsylvania Department of Education, Division of Special Education Title VI-B Comprehensive Planned Objectives

1. By September, 1973, identify and program for all mentally retarded children not currently in an educational program.
2. By 1975, raise the achievement levels of the majority of mentally handicapped children to a satisfactory level as determined by subjective and objective criteria.
3. By 1975, reevaluate all special education programs in public and approved private schools for the mentally handicapped.
4. By 1976, improve all programs, practices, and administrative organizations so that almost 100% of the children will have higher achievement levels.
5. By 1974, raise the achievement levels of the majority of sensory handicapped children to a satisfactory level as determined by subjective and objective criteria.
6. By 1974, reevaluate all special education programs in public and approved private schools for the sensory handicapped.

7. By 1976, improve all programs, practices, and administrative organizations so that most children will have higher achievement levels.
8. By 1973, identify effective instructional methods for the alleviation of learning difficulties in pre-school handicapped children.
9. By 1974, implement appropriate activities and services for the benefit of parents, to enhance the development of the child and to increase his potential for successful entrance into the school program.
10. By 1975, provide state supported remedial and readiness programs for all identified four year old handicapped children.
11. By 1975, provide intervention and remedial programs for all handicapped children who have major impairments at any pre-school age.
12. By 1975, develop sophisticated instructional program for all pre-school handicapped children.
13. By 1975, to have prepared a nucleus of well-trained teachers and other professional personnel in the area of early childhood handicapped.
14. By September 1973, have in operation wide spread and comprehensive identification systems of multi-handicapped children.
15. By September 1973, have in operation wide spread and comprehensive assessment-prescriptive procedures of multi-handicapped children.

16. By 1975, extend total programs for the multi-handicapped to upper age limits (12-21).
17. By September 1974, design and introduce model programs for demonstration purposes using a cross section of handicapped children who cannot succeed in existing vocational programs.
18. By September 1974, provide specialized vocational training to at least one half of the handicapped students who are not able to succeed in existing vocational programs.
19. By 1974, increase the number of handicapped children receiving vocational education to at least 60% of those in senior high school programs.
20. By 1974, provide remedial services for handicapped children to prepare them for vocational-educational programs.
21. By 1975, increase the number of handicapped children receiving vocational education to a figure approaching 100%.

The basic mission of the NRRC/P was to provide and coordinate support systems (direct and indirect) for teachers of the handicapped when faced with educational programming problems, within the region assigned. The foregoing mission was accomplished by responding to the goals of the Pennsylvania Division of Special Education as they merge with BEH priorities. To accomplish this mission, the following requirements and suggestions were adhered to:

1. Required by Legislation for NRRC/P
 - a. Testing for implementation of educational prescriptions;
 - b. Evaluation of services and prescriptions;
 - c. New methods of appraising educational needs of children;

- d. Individually prescribed educational programs;
- e. Monitoring educational progress of children evaluated;
- f. Modification of prescribed programs when necessary;
- g. Assistance to schools in providing recommended educational programs.

2. Suggested but not Required by Law

- a. Evaluate effectiveness of other educational programs for particular children;
- b. Share this information with other special education personnel who are working with the same type of child;
- c. Evaluate own efficiency, creativity, and effectiveness;
- d. Report on this to others concerned with development of similar centers;
- e. Train personnel to operate such centers;
- f. Train teachers working with children referred;
- g. Conduct in-service training of staff personnel on national level.

3. Additional Direction to the Thrusts of the NRRC/P were Defined by BEH in their Memo of March 8, 1972.

- a. Provide diagnostic and prescriptive services to the individual child.
 - (1) provide testing and educational evaluation to determine special educational needs;
 - (2) develop educational programs to meet those needs;
 - (3) improve teachers' skills and teaching methods.

- b. Apply improved and expanded teaching techniques to the child and demonstrate these to the classroom teacher.
- c. Provide consultation to teachers, parents, and organizations in applying educational services.
- d. Follow-up, reexamine and reevaluate educational programs and technical services.
- e. Provide a range of resources to schools in a specific effort to assure that schools can respond to the more seriously handicapped population, hidden, unknown, unidentified, and untreated.
- f. Implement new research findings.
- g. Train post graduate specialists as Strategists, Master Teachers, or Research Teachers.
In-service training of college and university faculties:
 - (1) aim more at seriously handicapped;
 - (2) aim teacher training efforts at changes in the system, e.g. facilitating the establishment of certification requirements for Strategists by SEAs;
 - (3) deal with enough teachers and children to demonstrate what RRCs are about.
- h. Develop a system of common descriptors and prescriptions for improving curricula.
- i. RRCs should coordinate with other BEH programs to avoid overlapping and duplication, while serving as a resource to these programs.

4. Further Recommendations Were Made By The USOE/BEH RRC
Consultant Committee To Give Direction For RRC Planning

a. Preparatory Work

- (1) Familiarity with official RRC provisions;
- (2) Contact with educational administrators;
- (3) Contact with non-school agencies and parents;
- (4) Needs assessment;
- (5) RRC organization plan

b. The 'Balanced' (or Model) RRC

- (1) Adequate conceptual bases;
- (2) Balanced objectives and implementation;
- (3) Balanced expertise among RRC staff;
- (4) Professional psycho-educational diagnosis;
- (5) Exemplary educational programming and service;
- (6) Parent consultation and involvement;
- (7) Utilization of relevant non-RRC resources;
- (8) Practical research utilization;
- (9) System of teacher training;
- (10) Evaluation of RRC's (ongoing) work;
- (11) Adequate reporting and dissemination activities;
- (12) Coordination with other RRCs.

During the period of operation of the NRRC/P the Commonwealth of Pennsylvania was faced with a class action suit on behalf of all retarded children identified as "The Right To Education." As a result of the decision mandatory educational services to the retarded, the NRRC/P assisted the Commonwealth of Pennsylvania in

implementing the Commonwealth Plan for Education and Training of Mentally Retarded Children (COMPET) in the following ways:

1. The Urban Service Unit Coordinator was directly responsible to the Philadelphia Superintendent of Schools for the identification of all mentally retarded children not receiving educational programs.
2. The Urban Service Unit Coordinator was charged with the task of developing procedures and the implementation of educational programs for the above children.
3. The NRRRC/P Training Coordinator in liaison with the Pennsylvania Bureau of Special Education and the Right to Education Office assisted in the development of a training program compatible with COMPET for teachers working with severely handicapped children having developmental ages from 0 to 4.
4. The Middle Urban Service Unit Assessment Team aided teachers and parents of handicapped children in the five Early Childhood Education Centers in the City of Harrisburg.
5. The Rural Service Unit cooperated with local Intermediate Units through the development of prognostic and assessment classes to implement COMPET for severely handicapped children.

The NRRRC/P initially served two thirds of the State in accordance with the conditions established during the awarding of the Project to the Commonwealth by the US Office of Education, Bureau of Education for the Handicapped. Currently the entire state of Pennsylvania has received project services.

The area presently served includes the Eastern, Central and Western Special Education Resource Centers (associate SEIMCs).

The NRRC/P Service Units were set up in the field in order to coordinate and provide direct support services to teachers of handicapped children when they are faced with specific educational programming difficulties. Service Units were established to respond to unique geographic and demographic needs and to be readily accessible to teachers.

The Urban Service Unit was located in the city of Philadelphia. Philadelphia is representative of most large eastern cities in reference to minority groups, integration problems, fiscal difficulties, overcrowding, teacher unions, lack of facilities, and the like.

The Suburban Service Unit served the remainder of the geographic area (except Philadelphia) covered by the Eastern Pennsylvania Special Education Regional Resources Center. This unit established resource rooms and self-contained target classes for Learning Disabled children to develop an instructional management system for teachers of handicapped children. An Individual Achievement Monitoring System, IAMS, was designed to assist teachers of self-contained classes in evaluating and managing educational programming for handicapped children. Resource room programs have been established for specific learning objectives.

In the Rural Service Unit, transportation difficulties that sometimes prevent the acquisition and utilization of staff as much as

they hinder the actual formation of special education classes, are a unique problem. In these same areas, special services are often available on a secondary level where regionalization has provided large high schools, yet, still neglected are the elementary age students in isolated local schools. The itinerant teacher and the mobile special education trailer were some of the Rural Unit's answers to this dilemma. The NRRC/P Rural Unit provided a system of individualized instruction to children by assisting teachers in isolated areas who have educational programming problems. This has been done by bringing resources to the schools.

"Middle Urban" was used in the Project to label or identify the city of Harrisburg and some of the surrounding Intermediate Units and communities. In the Middle Urban Service Unit we found some of the problems of the big cities still existing. Fortunately these problems were still at levels where resolution was possible. The NRRC/P staff has interacted in the Middle Urban area to produce meaningful change in handicapped children and their teachers.

Both the Rural and the Middle Urban Service Units were located within the area served by the Central Pennsylvania Regional Resource Center, an associate SEIMC.

In the 1973-74 school year, the NRRC/P moved westward to the Pittsburgh area and established a new unit to complete coverage of the State of Pennsylvania. The Western Pennsylvania Service Unit set up model target programs in selected Intermediate Units in coordination with Western Pennsylvania Special Education Regional Resource Center, an associate SEIMC located in Pittsburgh.

The focus of this unit's activities was on the multiply handicapped child.

Activity Maps

Solid areas on map (1) indicate areas served during the first operational year.

Checkerboard areas on map (2) show expansions during the second operational year.

Striped areas on map (3) represent expansions during Fiscal Year 1973-74 (third operational year).

(See following pages for maps.)

FIGURE 1

AREA SERVED DURING FIRST OPERATIONAL YEAR 1971-72

INTERMEDIATE UNIT ORGANIZATION

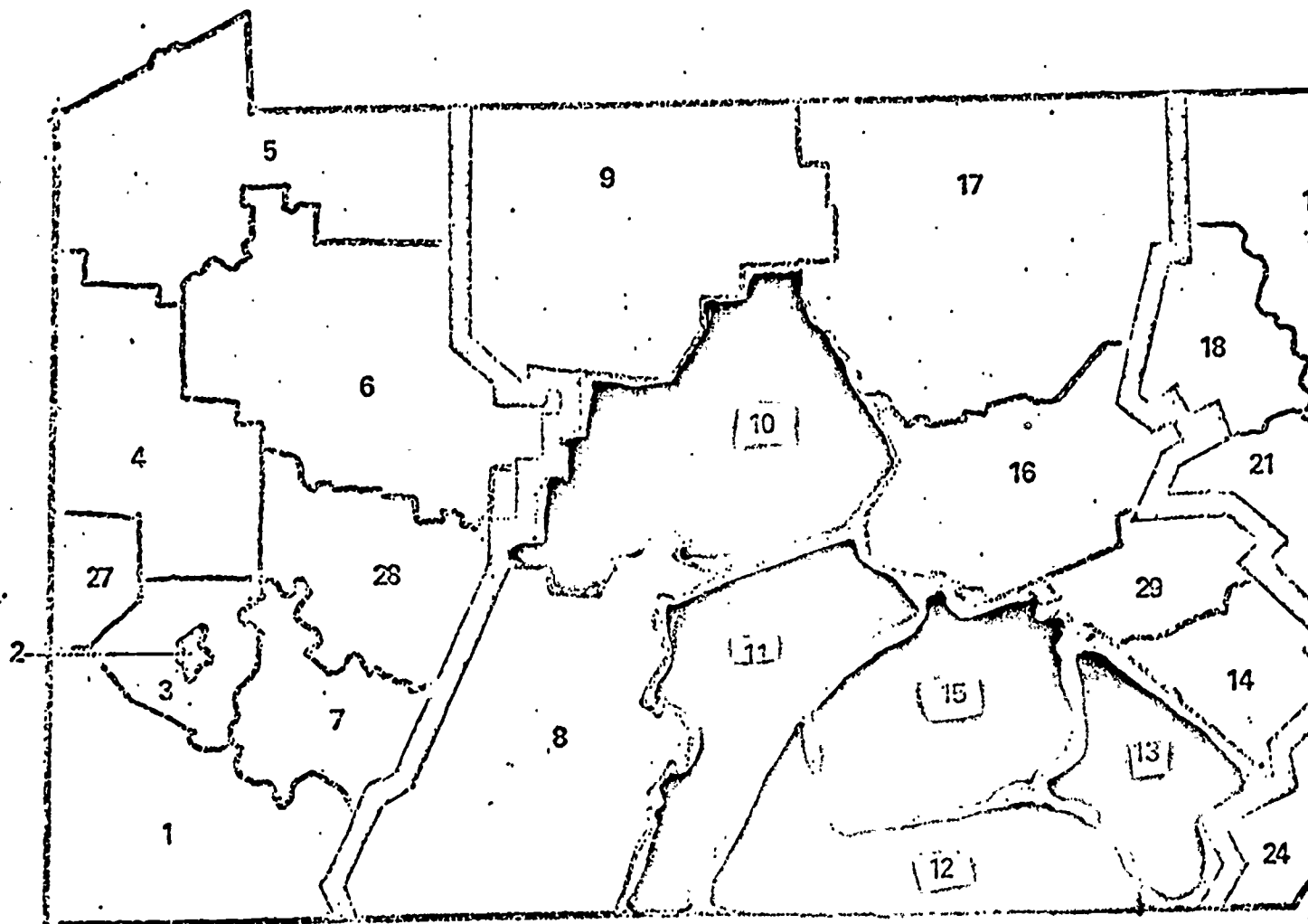


FIGURE 1

AREA SERVED DURING FIRST OPERATIONAL YEAR 1971-72

INTERMEDIATE UNIT ORGANIZATION

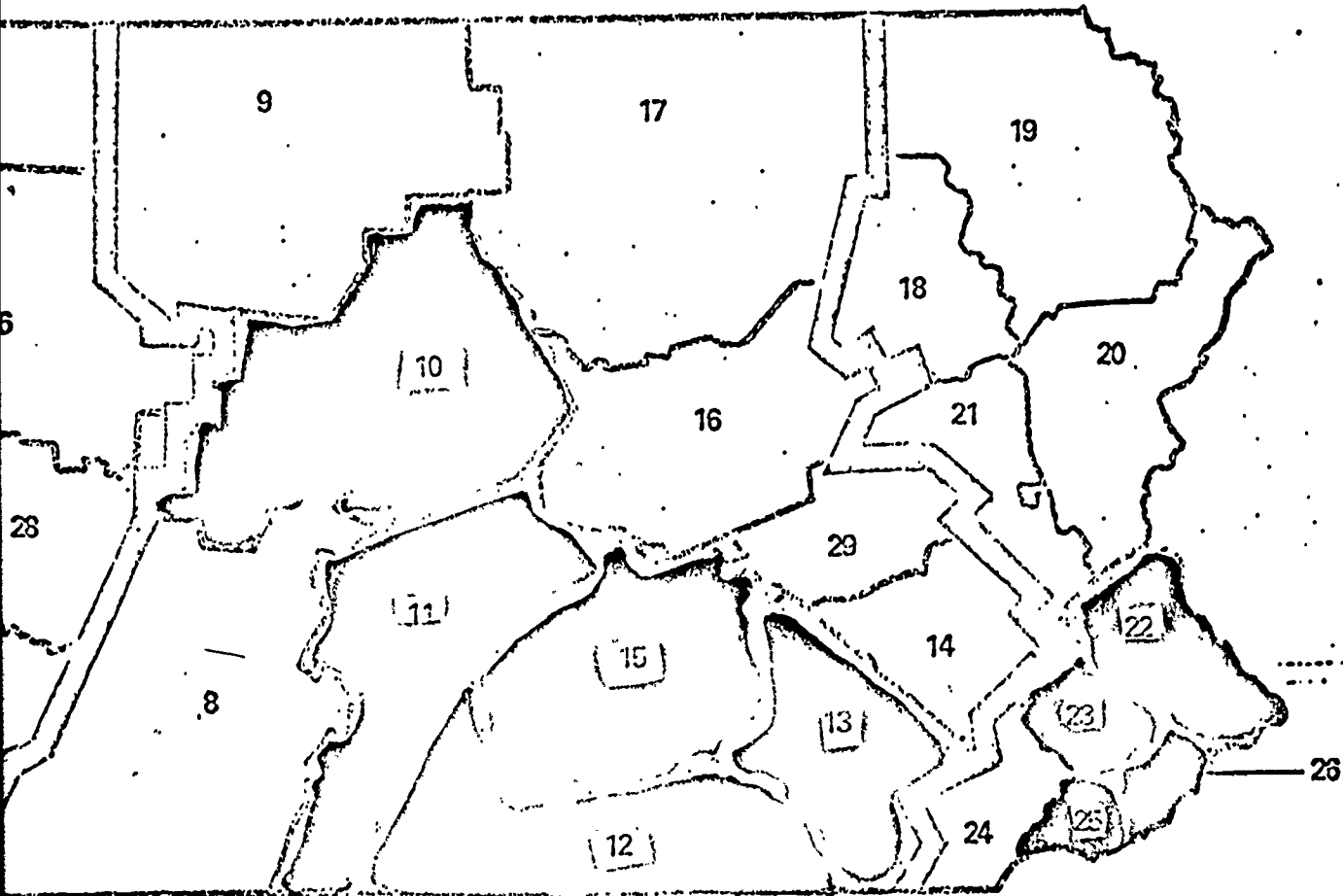
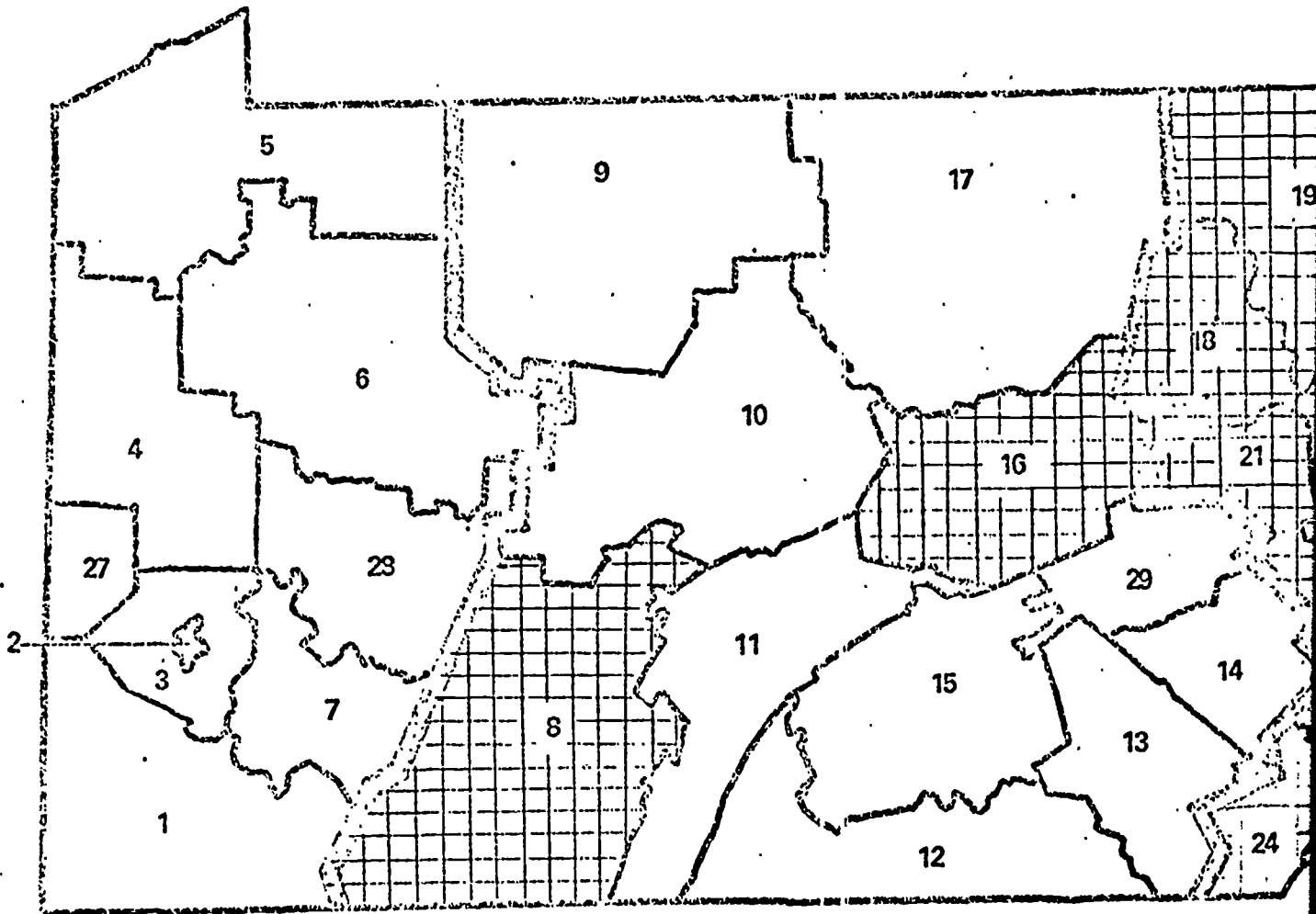


FIGURE 2

EXPANSION DURING SECOND OPERATIONAL YEAR 1972-73

INTERMEDIATE UNIT ORGANIZATION



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FIGURE 2

EXPANSION DURING SECOND OPERATIONAL YEAR 1972-73

INTERMEDIATE UNIT ORGANIZATION

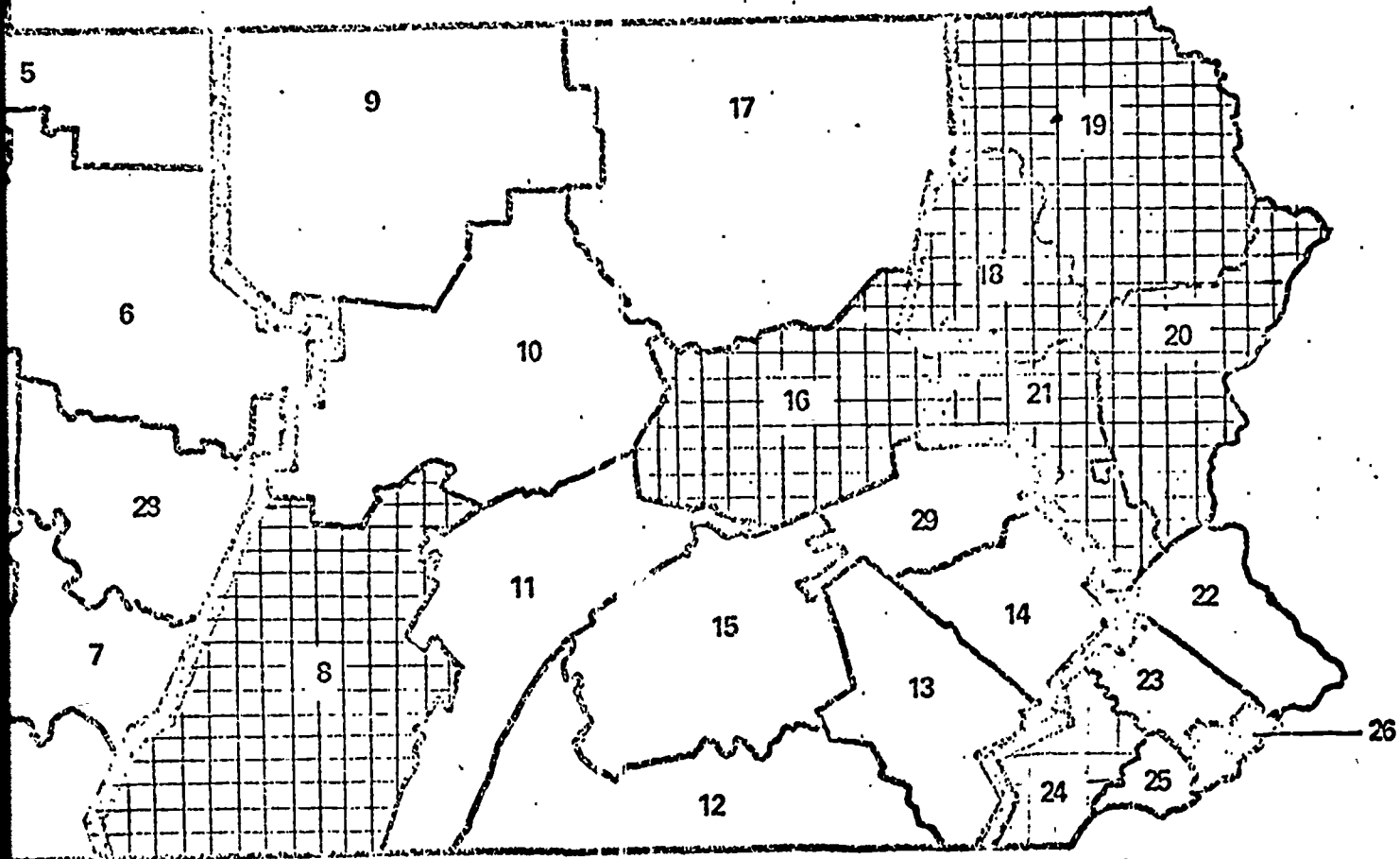
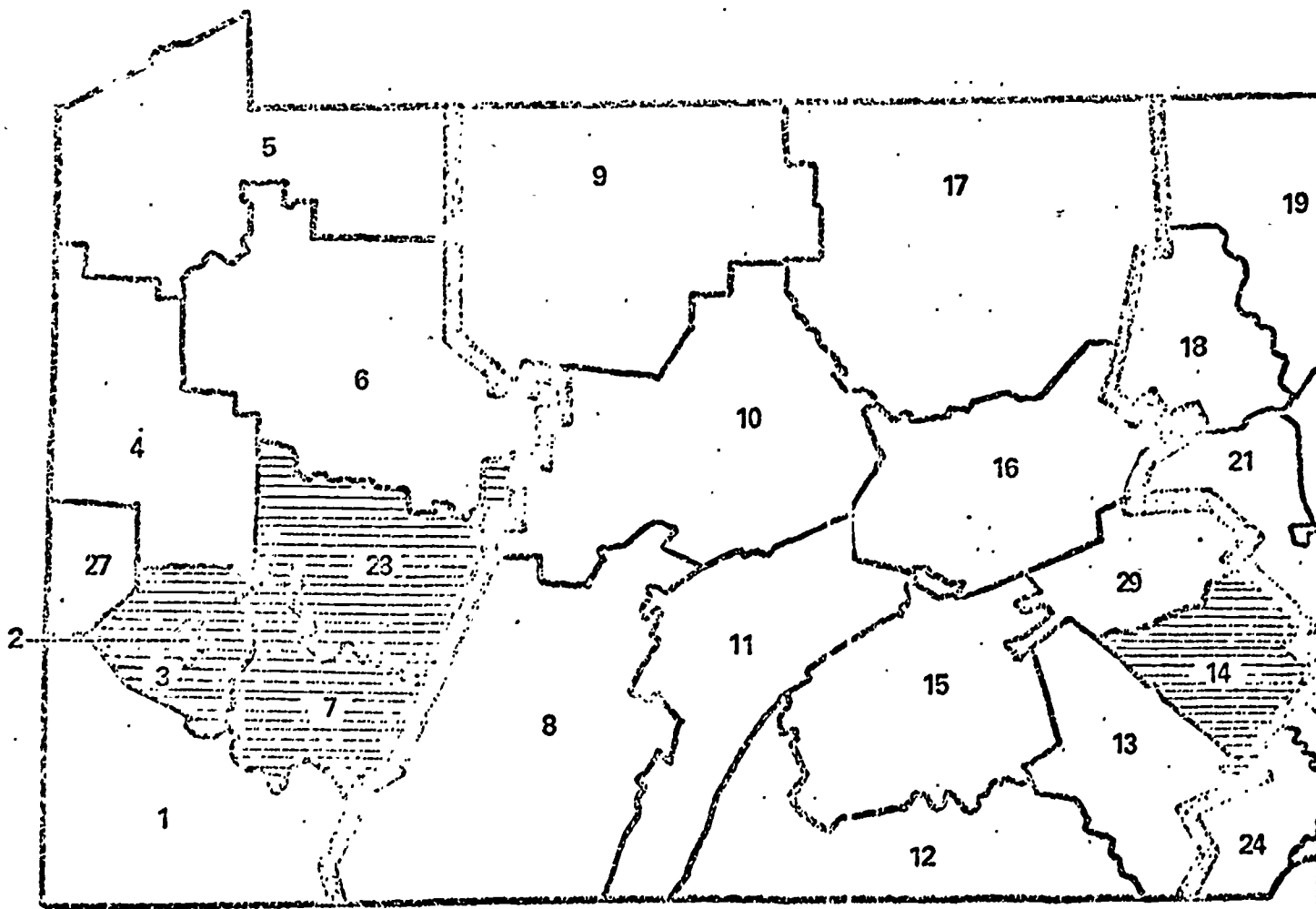


FIGURE 3

EXPANSION DURING THIRD OPERATIONAL YEAR 1973-74

INTERMEDIATE UNIT ORGANIZATION



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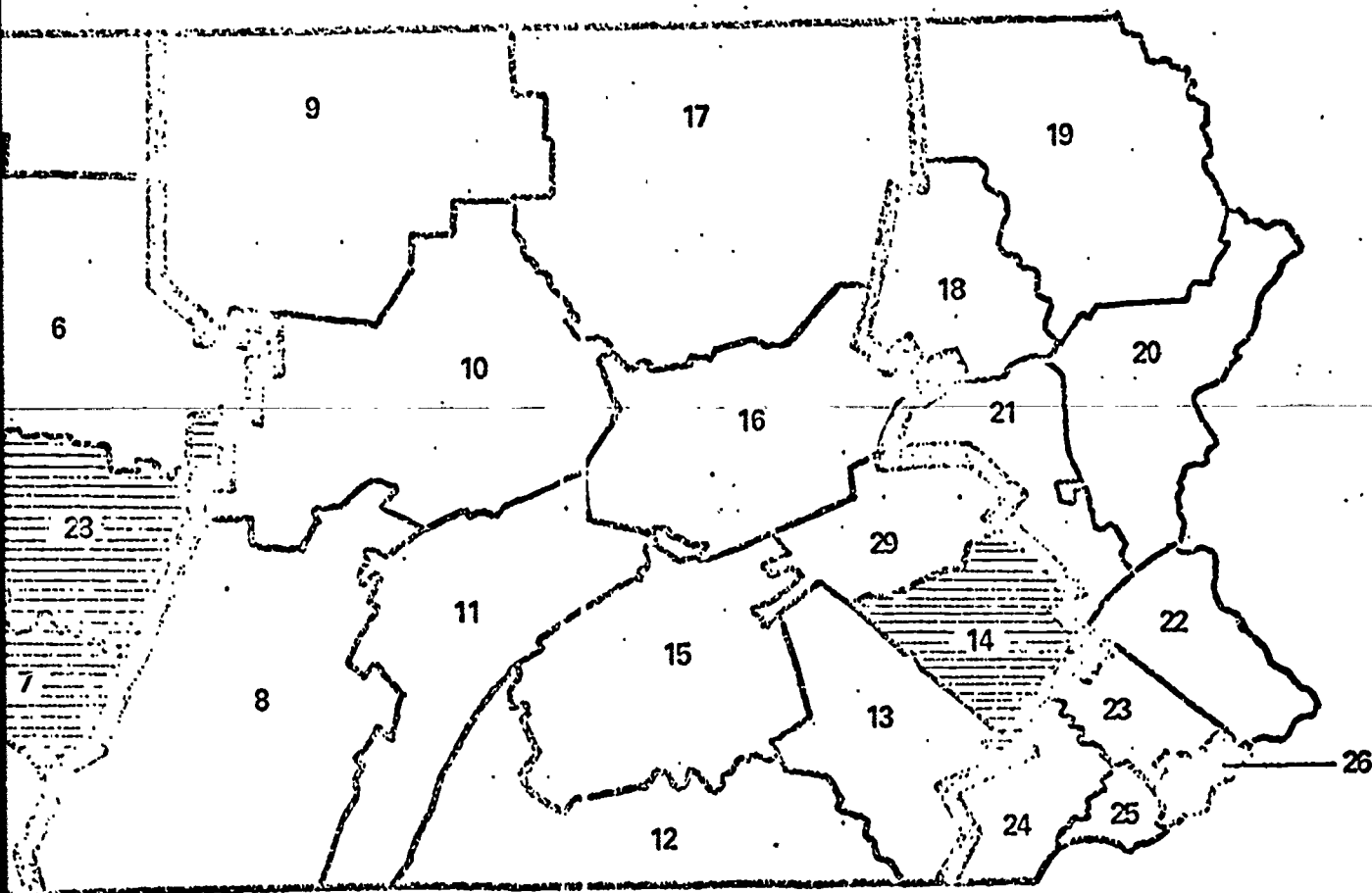
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FIGURE 3

EXPANSION DURING THIRD OPERATIONAL YEAR 1973-74

INTERMEDIATE UNIT ORGANIZATION



Each NRRC/P Service Unit had a diagnostic-prescriptive teaching coordinator and a psychoeducational diagnostician to collaborate with him/her. Further, itinerant master teachers, instructional advisors for individualized educational programs, resource room teachers, and teacher aides were employed for self-contained NRRC/P controlled classrooms and assessment classes.

Both the Unit Coordinator and the Psychoeducational Diagnostician provided psychoeducational evaluations of children. The Coordinator had the additional responsibility of supervising and coordinating all personnel within the Unit as well as providing evaluation services for a number of children within the Service Unit.

The Psychoeducational Diagnostician identified appropriate criterion tasks and diagnostic tests which were needed to describe the handicapped child in such a way that the needed educational materials and methods could be selected for the child. The Psychoeducational Diagnostician worked with itinerant master teachers and resource room teachers and (1) agreed upon the suitability of the criterion tests to be used to evaluate the child's performance and (2) selected new criterion tests to measure the educational objectives to be accomplished with the child in the next educational programming cycle.

Each Master Itinerant Teacher worked with teachers of handicapped children in special classes, regular classes, resource rooms, and other learning environments on a consulting and direct basis, beginning with the establishing of the nature of the child's problem and determining which educational objectives would be appropriate.

If no suitable prescriptions could be developed by the Master Itinerant Teacher and the teacher to meet the individual child's need within the classroom setting, the resource room provided an alternative learning environment for implementing a prescription within a small group or on a one to one basis. The resource room provided a space to try out, on a tentative basis, educational prescriptions before further implementation in the classroom was attempted. The Itinerant Master Teacher also worked on a consulting and direct basis with resource room teachers to provide the same type of service and guidance as was given to teachers of handicapped children in special or regular classes.

The Master Itinerant Teachers served a research and evaluation function by providing continuous feedback to and from teachers of handicapped children in special classes, regular classes, resource rooms, and other learning environments which were served by the NRRC/P relative to prescriptions, materials, methods, and consultants. They observed and evaluated the child's progress and the teacher/child interaction during the attempt to implement prescriptions. This provided continuous monitoring of the child's progress and the value of the approaches provided by the NRRC/P to the teacher of the handicapped child.

The resource room served teachers of the handicapped located in special and regular classes. The Resource Room Teacher worked with children in small groups or on an individual basis in attempting to implement a prescription for specific educational objectives. The master itinerant teacher provided back-up support to the

Resource Room Teacher in psychoeducational programming, selection of suitable materials, methods, and data keeping procedures.

There were assessment classes to serve each of the Service Units. The assessment class provided an opportunity to bring other professional resources to bear on those cases for whom no suitable diagnostic evaluation could be made in the steps already enumerated and/or to serve as a setting to develop new prescriptions and test them.

The assessment class in the Rural Service Unit was housed in a mobile trailer, which was necessary due to lack of space and to the small student population in the area served.

The Urban, Middle Urban, Western and Suburban Service Units provided assessment classes within a school resource room. Some assessment classes had two Teachers, one to serve as a relief teacher when consultant and teacher observation of the child was required or training of the teacher in new techniques was taking place.

The assessment classes had a Teacher Aide trained to observe classroom interaction of teacher and child, who kept records of the child's progress and of teacher comments in a format that made it possible to store the data on computer tapes. This relieved the Teacher of some of the non-teaching tasks and allowed her more time to analyze the child's performance and to observe the interaction phenomena which were occurring within the classroom.

During the second year of operation, each Service Unit was assigned to develop methods and procedures to achieve specific

educational objectives. The second phase, during the third year of operation, was to evaluate and determine more effective use of the available methods in achieving these objectives. This enabled the further development of various methods and procedures to achieve specific educational objectives and criterion tests or tasks to measure these objectives.

INTRODUCTION

The National Regional Resource Center of Pennsylvania has, during its four years of operation, focused its efforts on describing goals essential to its charge of providing support services to teachers of handicapped children. Briefly stated, these goals address the following areas of concern:

Goal 1

Provide a support system of instructional resources and strategies for teachers of handicapped children (in regular classes, special education classes, and resource rooms) to enable them to structure appropriate educational programs for these children.

- A. Provide a system for identifying and organizing learning objectives mandated or inferred in educational programs for handicapped children.
- B. Provide a system to identify and organize tests or task items used to measure the acquisition of learning objectives.
- C. Provide a system to identify materials that are available and appropriate for specified learning objectives with handicapped children having identified learning characteristics.
- D. Provide a system to identify instructional methods that are available and appropriate for achieving specified learning objectives with handicapped children having identified learning characteristics.

- E. Provide a diagnostic assessment system to identify learning characteristics of handicapped children.
- F. Provide a system for organizing, implementing, monitoring, and managing educational programs suitable for handicapped children in different learning environments.

Goal II

Provide assessment classes as diagnostic-prescriptive support to teachers of the handicapped as a back-up when no suitable educational program can be specified.

Goal III

Provide for coordination of plans and activities of the Pennsylvania Department of Education, Division of Special Education and the NRRC/P with other federal and state funded projects.

Goal IV

Provide a system for managing and evaluating the cost/effectiveness of the foregoing systems operating independently and in concert.

Goal V

Provide continued support to previously established facilities in addition to expanding these support services to accommodate additional children and teachers of the handicapped.

Committees and task forces were established throughout the life of the project around each of these goals. As new information and pertinent data became available, the focus of personnel relative to the goal was redirected accordingly. Based on this perspective, it appears that the most cogent approach to use in describing significant events throughout the existence of the National

Regional Resource Center of Pennsylvania is to view each goal in a historical and chronological sequence. By so doing, a time frame is established for all efforts and thrusts that relate to the development and implementation of a diagnostic-prescriptive strategy organized to support teachers of handicapped children throughout the Commonwealth of Pennsylvania for the four years of operation of the National Regional Resource Center of Pennsylvania. If this perspective is maintained in the reading of this report, the totality of the efforts expended by the project become clearer by maintaining a chronological thread of each activity individually rather than weaving them together at the onset.

ACTIVITIES AND RESULTS

Goal 1.1

Provide a system for Identifying and Organizing Learning objectives.

Activities

In order to provide personnel involved with the educational programming of handicapped students with specific statements of immediate range goals that provide a measureable system of teaching a student's progress, the NRRC/P has developed a system for identifying and organizing learning objectives. Such a system has also provided an essential ingredient as a procedure to coordinate and evaluate the usefulness of resources available to teachers of handicapped students: To meet this end, the NRRC/P was committed to the development of a learning objective file.

Results

1970-71 The first year of funding was devoted exclusively to planning. Activities toward this goal were limited to decision making to adopt a learning objective file.

1971-72 The major accomplishment toward this goal was the development of the Individual Achievement Monitoring System (IAMS). This system involved the construction of approximately 2500 behavioral objectives and corresponding criterion-referenced measures in the subject areas of reading and mathematics. The IAMS reading program was designed to accompany the Palo Alto Sequential Steps to Reading (K-3). The mathematics program accompanied the Sadlier Mathematics (K-3) Program. The use of the system was concentrated in the

Suburban Unit of the NRRC/P. Ten self-contained classroom teachers used the system to provide the bulk of instructional programming in reading and mathematics. The system clearly provided a procedure for tracking a student's progress.

1972-73 Although the IAMS provided student-tracking procedures, the system was embedded in the curriculum of the accompanying materials thereby limiting the usefulness in providing resource information to teachers of the handicapped. Accomplishments during this year focussed on the development of a file of learning objectives. In 1973, additional sources of learning objectives were collected and distributed to the teachers in the NRRC/P. A taxonomic structure was designed to encompass the following subject areas.

Reading and Language Arts
Mathematics
Perceptual and Perceptual Motor
Science
Self-Concept and Social Interaction
Social Studies
Self-Care
Fine Arts
Pre Vocational/Vocational
Other

Various sources of learning objectives were collected and divided into sub-areas of the list above. The sources included were:

1. IAMS Reading and Materials
2. Instructional Objectives Exchange (IOX)
3. Commonwealth Plan for the Educational Training of Mentally Retarded Children (COMPET)
4. SRA Diagnosis (MATH)
5. Objectives written by NRRC/P Unit Personnel

The total of learning objectives exceeded 2000 and were compiled, typed, copied and distributed to approximately 100 NRRC/P teachers through a paper-file procedure.

1973-74 The major accomplishment during this fiscal year of the Project was the development of extensive use of electronic data processing procedures. The learning objective file techniques paper file and taxonomic structure was abandoned in favor of a technique that enabled the learning objectives to be entered into a computer system and processed and sorted by a content descriptoring index. This enabled the file to include learning objectives in multiple subject areas. The content descriptoring enables the system to keep the sequence of learning objectives intact. These objectives were disseminated to approximately 150 personnel and system users who were able to select learning objectives or specific content areas from various commercial and non-commercial sources.

New sources of learning objectives were added to the system bringing the total number to 4500. Complete documentation of the learning objective system is available in Appendix C of the Special Education Resources, Location, Analyses and Retrieval System (SER-LARS).

Goal 1.2

Provide a system to identify and organize test or task items used to measure the acquisition of learning objectives.

Activities

This goal reflects the project's commitment to improve

instructional programming for handicapped children by closely monitoring pupil achievement on pre-selected learning objectives. It was believed that the continuous assessment of a child's progress would not only serve to facilitate the instructional process by providing immediate feedback, but would also provide a procedure for gauging the effectiveness of educational prescriptions.

Results

1970-71 The first year of the project was primarily devoted to planning which in part involved the decision to adapt a basic instructional approach and to work on the procedures for this to be done. Since previous models and/or development in this area was minimal or nonexistent, it was decided that each of the NRRC/P service units would develop their own objective-referenced monitoring procedures initially rather than adopting or developing a project-wide system.

1971-72 The most notable accomplishment directed toward this goal during the second project year was the development and implementation of the "Individual Achievement Monitoring System" (IAMS) by the Suburban Unit. Essentially, this system involved doing a task analysis of the Palo Alto Sequential Steps in Reading (K to 3) and the Sadlier Mathematics Program (K to 3) resulting in two sets of learning objectives with corresponding objective-referenced tests to monitor pupil mastery of the objectives. A complete report of this system is available elsewhere.

1972-73 Implementation of the IAMS revealed great potential when used in self-contained special classes, but it showed limited potential for use in resource rooms where diverse instructional materials and programs were in use. Consequently, two new major initiatives were taken during the third project year. First the IAMS was revised for greater flexibility by breaking apart the multi-objective tests into mini-tests corresponding to a single objective. Second, it was at this time that plans were undertaken to develop a curriculum-free objective bank and corresponding objective measures to serve as the basis for an NRRC/P diagnostic prescriptive data bank.

1971-72 A major shift in the project occurred during this year with the project-wide adoption of the diagnostic-prescriptive instructional model in the emerging Special Education Resources-Location, Analyses, Retrieval System (SER-LARS). Behavioral objectives and corresponding ORMS from many sources, including IAMS, were selected for inclusion in this system.

While specific objective-referenced tests were not generally maintained on file for all of the objectives in the system, many of the sources from which objectives were selected had objective tests embedded within them. For those objectives for which adequate tests were not available, teachers were encouraged to submit their own tests referenced to specific objectives, which were then maintained in a central file.

1973-74 Further development and extension of SER-LARS was

carried out during this period. However, due to the growing number of objectives, the task of maintaining an exhaustive objective based test file became impractical since an adequate delivery model for disseminating such tests to the classroom teachers had not been developed. It was at this point that the teachers were provided extensive in-service for developing their own objective-referenced tests and for adopting such tests from the instructional materials available to them.

Goal 1.3

Provide a system to identify materials that are available and appropriate for specified learning objectives with handicapped children having identified learning characteristics.

Activities

The NRRC/P identified a need for coordinating the identification, classification, analysis, evaluation and distribution of instructional materials which could be matched to specific learning objectives for certain handicapped children.

Although the Mid-Atlantic region SEIMC would appear to be the appropriate agency for this function, a more specific type of coordination, limited to Pennsylvania was proposed to be integrated with the state's associate centers.

The need within Pennsylvania was for a viable matching and delivery system utilizing all currently existing facilities. To this end three systems were developed (1) a system to develop instructional materials (2) a system to analyze and match instructional materials (3) a system to provide user histories on

instructional materials.

Results

1970-71

1. The location, Analysis, and Retrieval System (LARS) was developed to identify and analyze 3,400 instructional materials which could be retrieved via descriptors of learning objectives and descriptors of handicapped students.
2. Development of standard instructional materials, inventory procedures was initiated.
3. Analysis of two sets of curriculum materials, Sadlier Mathematics and Palo Alto Reading Series was initiated.

1971-72

1. LARS was installed in the three association SEIMC's and NRRC/P unit personnel were trained in its use.
2. The analyses of the Sadlier and Palo Alto series were completed and implemented.
3. Mediagraphic processing procedures were implemented at a state institution and then revised and implemented in selected target classes.
4. Planning was completed for a user-history system on instructional materials.

1972-73

1. Mediagraphic processing was initiated at the Pennsylvania Eastern Regional Resources Center (ASEIMC) and over 8000 instructional materials were identified. Planning for inventory of Allentown School District was completed.

2. Lists of 500 commonly used instructional materials were distributed to target classes for teachers to report the use of materials with each student.

3. The first-user history which matched materials to objectives was distributed to target classes.

1973-74

1. There are currently over 10,000 instructional materials which have passed through the media graphic processing procedures and are maintained on computer tape. The process is a continuous updating of ASEIMC holdings. The procedures are used in inventories of classrooms in the Allentown School District where additional materials are identified each summer.

2. The collection of instructional materials information from users continues and a file of teacher-made items has been established. This file is indexed by content area of the learning objectives. There are currently 5000 commercially available items and 500 teacher-made or teacher-adapted items in the user file. Approximately 60% of the commercial items and 90% of the teacher items has been matched to learning objectives through the user-history.

Goal 1.4

Provide a system to identify instructional methods that are available and appropriate for Achieved Specified Learning Objectives with Handicapped Children Having Identified Learning Characteristics.

Activities

Activities toward this goal resulted in the design and development of an Instructional Methods File which provides teachers of the handicapped with instructional methods or activities relevant to specific content areas. The file is based on an information-sharing procedure through the implementation of a common diagnostic-prescriptive model. Users of the model specify and document a learning objective and identify materials and methods employed to assist the student in acquiring the learning objective. Instructional methods are outlined and include the sequential student task (task analysis), the implementer action (teaching procedures) and the materials necessary for the activity. The methods are collected, processed and delivered to users of the model throughout the Commonwealth of Pennsylvania in various report formats.

Results

1970-71 The first year of the project was devoted to planning. Planning decisions resulted in specifying a need for prescriptive record keeping techniques.

1971-72 During the first operational year the most notable accomplishment was the development of prescription records by each of the service units of the NRRC/P. These first prescriptive records collectively formed the basis for the development of a project-wide format for prescription documentation.

1972-73 During this period the NRRC/P developed a project-wide

prescriptive record which identified learning objectives and instructional materials used in the prescription. Prescriptive records were limited to learning objective-instructional material matching.

At the end of the 1972-73 school year, the prescription record was revised to include instructional method documentation as well as matching instructional materials to the learning goal.

Collection of the prescription records resulted in the accumulation of approximately 400 methods. All of the methods collected and processed were designed for the instruction of severely retarded children in institutional settings. The methods file format emphasized instructional techniques for low-functioning children since few materials are developed specifically for low level skills.

1973-74 Throughout the final project year, activities were directed toward the expansion of the methods file. Holdings currently number 1100 separate and distinct instructional methods. As before, the major emphasis is in strategies for the low functioning child. Methods that were basically academic in nature began to be submitted to the file later in the school year.

Goal 1.5

Provide a diagnostic assessment system to identify learning characteristics of Handicapped Children.

Activities

Diagnostic assessment services have been an integral component of the NRRC/P project since its inception. The development of appropriate and adequate assessment procedures have been the focus of extended discussion and experimentation over the past five years. Two major considerations were to guide these activities. First, the procedures had to provide sufficient information to formulate effective instructional prescriptions reflecting the diagnostic learner characteristics; second, the procedures were to provide comparable diagnostic data across all children referred for service throughout all the NRRC/P service units.

Results

1970-71 During the planning year, a project wide set of assessment instruments were selected and agreed upon for use during the first operational year. The set of instruments comprising the original diagnostic assessment battery are presented in the first column of table 1.

TABLE 1
STANDARD DIAGNOSTIC TEST BATTERIES

TESTS USED IN 1971 - 72	CHANGES FOR 1972 - 73
Wechsler Intelligence Test	Slossen Intelligence Test
Bender Gestalt Test	Continued
Ravens Progressive Matrices	Dropped
Wepman Auditory Discrimination Test	Dropped
Illinois Test of Psycholinguistic Ability	Continued
Stanford Achievement Test	Continued
Wide Range Achievement Test	Continued
Durrell Analysis of Reading Difficulties	Dropped

1971-72 The above-mentioned assessment battery was implemented in all NRRC/P classes. Inspection of the tests presented in the first column of Table 1 reveals that the original test battery was composed of educational and psychological tests capable of providing a wealth of information having great potential for planning effective programs for handicapped children. While this potential was realized in most cases it became apparent during the year that the amount of time spent testing was often excessive and in other cases it was difficult to secure adequately trained personnel to administer certain of these psychological tests. For these reasons, the test battery was modified and shortened for the second operational year as shown in the second column of Table 1.

1972-73 The changes made in the test battery were generally perceived as positive by the project staff. However, during this period the project was becoming increasingly involved with the more severely handicapped and it became apparent that the then current battery would not be adequate during the next year for the diverse handicapping conditions evidenced in the children being served by the project. Consequently a test committee was established during the summer of 1973 to reevaluate the concept of a uniform test battery for all handicapped children. Out of this effort, a differential assessment procedure was developed which was designed to permit greater flexibility in the selection of tests depending on the nature of the handicapping condition

and on the instructional area of concern. The revised procedures were instituted during the 1973-74 school year.

1973-74 Testing procedures during this period involved four levels or types of test information, of which only the first two were required. The first testing level focussed on the assessment of intellectual ability using one of several well administered intelligence tests. Not only does the procedure permit a selection of tests for this purpose but existing test scores can be reported if they are available, thus avoiding a duplication of testing effort. The second level of testing focussed on the assessment of pre-post-intervention level of ability in the instructional area of concern i.e. reading, math, perceptual/motor skills, etc. At this level of testing, several different tests are deemed appropriate for each of the curricular areas.

Level 3 and level 4 testing focussed on content diagnosis and process diagnosis respectively wherein any test or procedure may be used to provide the specific diagnostic information.

This current assessment system provided certain baseline data for all pupils and yet permits sufficient flexibility to select tests most appropriate to each individual case.

The testing procedures, outlined above, were used in each of NRRC/P service units throughout the commonwealth. Adaptations were made in each of the service units to suit the local requirements but in most situations, these assessment procedures were incorporated as an integral part of the instructional model

independent of whether the pupil was being seen in a resource room, self-contained special class or other learning environment.

Goal 1.6

Provide a system for organizing, implementing, monitoring, and managing educational programs suitable for handicapped children in different learning environments.

Activities

There is a need to identify and/or develop procedures through which teachers of the handicapped can diagnose children, prescribe individual programs, implement programs and continuously evaluate those programs for each of their students. These procedures must be applicable to a variety of learning environments including regular classes, resource rooms, homes and institutional settings.

The development and implementation of programs for individual students must be carried out through the use of the most appropriate human resources. These human resources could include itinerant specialists, the teacher aides, the teachers or parents.

With clearly defined procedures, it appears possible to devise economic ways of identifying and obtaining some learning objectives through a combination of the above resources. For example, a teacher of the handicapped could assign a teacher aide to perform specific activities with children under her supervision and spend more of her own time in planning and managing more realistic programs for her students.

To this end, a specific diagnostic-prescriptive model was developed for use by itinerants and resource room personnel and a curriculum management system was developed for use in self-contained classes (see CMS in the document catalog.)

Results

1970-71 In this planning year students were not being served directly but the diagnostic-prescriptive and curriculum management models were being developed.

1971-72 The program involved:

4 resource rooms in Philadelphia

5 resource rooms in the Middle Urban Unit

3 self-contained classes and 4 resource rooms in the Suburban Unit

6 itinerant resource teachers in the Rural unit

During this year 40 schools were served either directly or through itinerant service. Less than 1000 children were served during this year.

1972-73 The program involved:

4 resource rooms in Philadelphia

6 resource rooms and an assessment team in the Middle Urban Unit

10 resource rooms and 10 self-contained classes in the Suburban Unit

11 resource programs and an assessment class in the Rural Unit

Service was extended to over 120 schools primarily through the use of itinerant support models. Over 1300 children went through various stages of the diagnostic-prescriptive model.

1973-74 The program involved:

10 resource rooms in Philadelphia

5 resource rooms, an assessment team, a transitional class, and a self-contained class in the Middle Urban Unit

10 resource rooms and 10 self-contained classes in the Suburban Unit

11 resource programs, an assessment class and a model special education system (all types of environments) in the Rural Unit

2 resource rooms and 3 self-contained classes in the Western Unit

During this final year, over 150 schools and institutions were served through direct support, itinerant support, and technical assistance.

Over 2100 children were referred and evaluated.

Goal 2

Provide assessment classes as diagnostic-prescriptive support to teachers of the handicapped as a back-up when no suitable educational program can be specified.

Activities

This goal recognized that for certain handicapped children, routine evaluation would be inadequate for planning effective

instructional programs. Consequently this goal called for the establishment of centrally located assessment classes to carry out extensive evaluation for those unique or complex problems which previously have defied effective diagnosis and prescription.

Results

1970-71 The concept of assessment classes and the administrative arrangements for the establishment of such classes were carried out during the first year. It was decided that such classes should be closely coordinated with university programs which could provide facilities for consultive expertise as required for these unique cases.

1971-72 Two assessment classes were established one through the Rural Unit in State College and the other through the Middle Urban Unit in Harrisburg. The operation in the Rural Unit was operational at this time, accepting children for assessment and short term placement to carry out prescriptions. The class in Harrisburg was supplied with the necessary diagnostic instruments and instructional materials but was not ready to accept children for this first year. In the spring, of 1972 the building housing the assessment class was destroyed by a flood.

1972-73 As a result of the flood, and other administrative difficulties the assessment team was composed of two teachers and two aides who traveled between schools working on a requested basis. By having an itinerant service, the earlier difficulty encountered relative to the transportation of pupils to a special class was eliminated. This team was supported by a psychoeduca-

tional diagnostician when difficulties were encountered. The purpose of the assessment team was to diagnose, develop a prescription, and provide support to the regular class teacher in implementing the prescription.

The assessment class located in the Rural Unit functioned in much the same way with the exception that the diagnosis and prescription implementation was not carried out in the child's regular class.

1973-74 The success of the assessment team concept was of central importance in reevaluation of the service model for the entire project. Since it eliminated the transportation problem it was possible to reach children in diverse settings and more importantly provided an effective means for working with classroom teachers who ultimately are responsible for continuing the instructional program of the child once NRRC/P direct intervention with the child was terminated. Consequently the itinerant concept found acceptance in the other service units.

The assessment class in the Rural Unit was the only project class directed exclusively to conducting and documenting rare and complex cases.

Goal 3

Provide for coordination of plans and activities of the Pennsylvania Department of Education, Division of Special Education and the NRRC/P with other federal and state funded projects.

Program Cost

	<u>70-71</u>	<u>71-72</u>	<u>72-73</u>	<u>73-74</u>
NRRC/P (BEH Contract)	\$ 97,000	\$351,000	\$550,000	\$550,000
Other Federal Projects	165,000	191,000	556,000	531,000
State Special Education Funds		589,000	1,686,000	1,850,000
Total Funds	<u>\$262,000</u>	<u>\$1,131,000</u>	<u>\$2,792,000</u>	<u>\$2,931,000</u>

Activities

There was a need for establishing a coordinated diagnostic-prescriptive resource support system within the Commonwealth of Pennsylvania. This program dealt with coordinated service agreements and activities through the Division of Special Education with other related federal and state funded projects to meet the specific diagnostic-prescriptive needs of handicapped children. These agreements had to be established so that diagnostic-prescriptive products in a common format could be shared with other special educators. This was accomplished by reporting information in a standard format for entry into the diagnostic-prescriptive instructional data bank. Utilization of these products for teachers of handicapped children faced with educational programming problems provides product usage histories.

The following federal projects were funded and coordinated through the NRRC/P. These projects related to the diagnostic-prescriptive program and include: an ESEA Title VI grant in IU 10

(#48-0155-13-080) and (#48-0246-44-425), an ESEA Title VI grant in Huntington County (#48-0769-31-290), an ESEA Title VI grant in IU 11 (#48-0769-31-291), an 89-313 grant in Elwyn Institute (#48-7084-23-830), an ESEA Title III grant in IU 23 (#R-59-H-48-70-0010-0), an ESEA Title III grant in Allentown (#710578), an ESEA Title III grant in the Philadelphia School District (#F2-72071-51-500-01-15-A). The amount of these other Federal Cooperative Projects for the four year period equals a total sum of around One-and-One Half Million Dollars.

In order to carry out the NRRC/P mission, the Chief of the Division of Special Education through cooperation with local Intermediate Units agreed to hire staff members for new classroom positions and assign programs to be developed under the direction of the NRRC/P. This decision assures that the people would have tenure within Pennsylvania and to assist in integrating the NRRC/P Diagnostic-Prescriptive model into the existing Special Education Program. One-hundred-seventy (170) of these teachers who have been trained have tenure within Pennsylvania.

Twenty Intermediate Units with 200 schools have been involved in a jointly operated demonstration program with NRRC/P. The total Commonwealth Special Education in-kind contribution of the four-year period equals a sum of approximately Four Million Dollars.

Results

1970-71 During this time period the first advisory and policy boards were established with representation from related federal and state projects and educational institutions. Problems were

encountered with the transition of Pennsylvania from a county to intermediate unit operation but cooperation was obtained from eight intermediate units. Pre-service and in-service workshops were held for personnel to be involved in the first year of operation.

1971-72 During this year the programs outlined under goal 1.6 got under way. The management of the project was conducted from the office of the Division of Special Education in order to maintain close contact with all state programs. The director began attending weekly staff meetings and attended various state special education planning meetings.

1972-73 As a result of joint planning between Local Education Agencies (LEA's) and NRRRC/P, proposals were submitted to obtain support to meet unique needs encountered in the various areas served by the NRRRC/P service units. These projects included, establishment of classes for severely handicapped who were not in school prior to this time, development of learning objectives for the trainable mentally retarded, and establishment of a support center for diagnostic-prescriptive materials in rural areas.

In addition, a plan for continuous mediagraphic processing was formalized with the Eastern Pennsylvania Regional Resource Center (an ASEIMC), assistance was given the Right to Education office in revising their referral and placement procedures for the mentally retarded, and the project director and associate director participated in the Division of Special Education's program planning and budgeting system (PPBS).

1973-74 The NRRRC/P adopted for use the Commonwealth of Pennsylvania Quality Performance Guide for specifying (a) product/service objectives; (b) milestone activities; and (c) standards for achievement in order to facilitate interface through a common PPBS at the state and intermediate unit level.

A cooperative agreement was developed between the Division of Special Education and NRRRC/P to enter products developed through Title III and Title VIC projects into the diagnostic-prescriptive instructional data bank. The first products submitted were prescriptions in a common format from a summer program for teachers working with severely and profoundly retarded children. These summer workshops were conducted with four institutions of higher learning.

This agreement is indicative of the continuing cooperative relationship between the NRRRC/P and the Division. The NRRRC/P director has long been considered a member of the Division staff and other key project personnel are called on frequently to assist in developing, implementing, and monitoring special education programs throughout the state. The project remains in a unique position to coordinate resources within Pennsylvania and is increasingly viewed by special education leaders as a tool for improving their programs.

Goal 4:

Provide a system for managing and evaluating the cost/effectiveness of the foregoing systems operating independently and in concert.

With the move toward greater fiscal accountability in education, the NRRC/P took as one of its charges the development of a viable management by objective system that could provide cost/effectiveness information for decision making and reporting purposes. Such a system helped insure the orderly and efficient movement toward the attainment of project goals by identifying critical milestones and support components.

Results

1970-72 During the first two years of the project a systems analyst was charged with reviewing alternative management systems and the needs of the project. He was charged to develop the parameters of a management system that would be compatible with the constraint's of the project and parallel other state department systems.

1972-74 A contract was negotiated with an external organization to develop the specific Management Information System (MIS) consistent with the parameters identified during the planning period. A task analysis of the goals and objectives of the project resulted in a workscope breakout by personnel positions which would permit staff to record work efforts directed toward each of the project goals and objectives. Moreover, line item budget allocations were identified by objectives, thus providing an estimate of the cost for each component. Complementary to this fiscal accounting by objective system, a PERT network was developed to provide for coordination to insure the orderly delivery of service or completion of products.

Turn around documents resulting from these three complementary management components (staff time accounting, product/service monitoring and cost accounting systems) were provided to the management staff for decision making and reporting purposes. To evaluate student achievement, gain scores were calculated based on standard instruments. Questionnaires were used to evaluate impact upon special educators and administrators throughout the Commonwealth.

Documents and Publications

During the four years of the NRRC/P's existence, numerous documents and strategies were developed to support the activities of the project. A catalog that identifies and abstracts the products and articles written by project staff and consultants is attached to this report as Appendix A.

CONCLUSIONS

The activities directed toward the previously noted goals have constituted a major effort of the NRRC/P over the past four years. During this time the project moved from a rather simplistic approach which was found lacking, to a more sophisticated system. This system more adequately provided the instructional support required for effective programming of handicapped children in diverse educational settings. In order that others may evaluate the activities that were undertaken and appreciate the developmental progression which gave rise to the present systems, a brief overview of project activities for each of the four years is presented below.

The first year of funding, 1970-71, was devoted exclusively to planning. Two alternative instructional support models emerged from this planning period. One of these models reflected a diagnostic-prescriptive approach with an emphasis on modality assessment and corresponding prescriptions to overcome learning problems. The other model was basically a classroom management system which incorporated a series of criterion-referenced tests to facilitate the management of pupil progress in the areas of reading and mathematics.

During the first operational year, 1971-1972, the diagnostic/prescriptive modality model was implemented in target classes operating out of the Rural Unit of the NRRC/P at State College. The classroom management model was implemented in target classes sponsored by the Suburban Unit of the NRRC/P in King of Prussia.

During the second operational year, changes were made in both of these models to make each of them more responsive to the

practical needs encountered during the first year. It should be noted that these models have been viewed as two alternative rather than competing approaches. Both models were designed to provide instructional support to handicapped children. Furthermore, during the second operational year, both approaches were used in diverse settings across the four NRRC/P service units which were operational at that time. The particular model implemented was influenced by a number of factors, not the least of which was the administrative arrangements at the local level which provided the instructional setting.

During the third operational year, 1973-1974, these two alternative instructional support models reached maturity and resulted in two well-developed instructional support programs. The diagnostic-prescriptive model resulted in what is now known as the NRRC/P Special Education Resource - Location, Analysis, and Retrieval System (SER-LARS). The instructional management model gave rise to the Curriculum Management System (CMS) which has been copyrighted by the Montgomery County Intermediate Unit #23.

In order to understand how these two support systems give operational expression to the goals of the project, a brief description of each program is provided in Table 2.

It can be seen by inspecting Table 2 that both of these support systems address most of the project's instructional goals. However, it should be pointed out that each has unique aspects which recommend them for different situations. Because the CMS is a curriculum embedded management system, it does not readily lend itself

TABLE 2
TWO NRRC/P INSTRUCTIONAL SUPPORT PROGRAMS

Goal	Curriculum Management System (CMS)	Special Education Location, An Retrieval (SER-L)
Provide a system of identifying and organizing learning objectives	Approximately 500 sequenced behavioral objectives for the Palo Alto, K-3 Reading Program	Approximately 4, objectives arranged by descriptors taken from sources and covering content areas
Provide a system to identify and organize tests to measure learning objectives	A series of 42 objective-referenced tests	Approximately 100 structured criterion-referenced tests
Provide a system to identify materials appropriate for specified objectives	System is based on the materials specified by the Palo Alto Reading Program	Bibliographic coverage of over 2,500 materials including 500 materials
Provide a system to identify methods for achieving specified learning objectives	System is based on the methods and activities specified by the Palo Alto Reading Program	A method's file covering approximately 900 methods including largely with level tasks
Provide a diagnostic assessment system to identify learner characteristics	The series of pre-post tests permit a continuous assessment of the reading skills	System is based on diagnostic mode appropriate psychological educational tests
Provide a system for organizing implementing, monitoring and managing educational programs	The basic concept of CMS is to manage the instructional process thru continuous assessment of pupil progress	The instructional system provides a viable prescriptive system for identifying and effective instructional procedures

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TABLE 2
TWO NRRC/P INSTRUCTIONAL SUPPORT PROGRAMS

	Curriculum Management System (CMS)	Special Education Resources Location, Analysis And Retrieval System (SER-LARS)
System of identifying objectives	Approximately 500 sequenced behavioral objectives for the Palo Alto, K-3 Reading Program	Approximately 4,500 behavioral objectives arranged by context descriptors taken from diverse sources and covering multiple content areas
System to organize tests learning objectives	A series of 42 objective-referenced tests	Approximately 100 teacher constructed criterion-referenced tests
System to materials specified	System is based on the materials specified by the Palo Alto Reading Program	Bibliographic citations of over 2,500 materials w/approximately 500 matched to objectives
System to methods for specified objectives	System is based on the methods and activities specified by the Palo Alto Reading Program	A method's file that contains approximately 900 methods dealing largely with "trainable" level tasks
Diagnostic system to monitor progress	The series of pre-post tests permit a continuous assessment of the reading skills	System is based on four stage diagnostic model using appropriate psychological and educational tests
System for implementing, and managing programs	The basic concept of CMS is to manage the instructional process thru continuous assessment of pupil progress	The instructional model provides a viable diagnostic prescriptive system for identifying and organizing effective instructional procedures

to use in regular classrooms unless the particular reading program upon which it is based can be adopted for the entire class or for the individual children who require this type of program. On the other hand, our experience and research data indicate that the use of this system can be very effective for teaching beginning reading skills to handicapped children when the particular program is adopted in self-contained special classes or resource rooms. Although at the present time, the CMS is based upon a single reading program, it seems reasonable that the concepts upon which it is based, can lend themselves equally well to other programs and content areas. Further developments in other curriculum areas seem warranted.

SER-LARS is uniquely capable of identifying materials or strategies which have been found effective by educators in teaching identifiable learning objectives to handicapped children. Because the system matches materials, strategies and resources to objectives which are not specific to any one program or curriculum area, it has tremendous potential for responding to diverse programming needs, independent of the particular curricular programs in use. It has the unique capability of suggesting solutions to programming problems, and lends itself well to resource room itinerant master teacher programs which in turn, provides support to the instructional efforts of regular classroom teachers.

Collectively, these two support programs have evolved to support the programming needs of handicapped children in diverse educational settings, in diverse curriculum areas, and with diverse handicapping conditions.

RECOMMENDATIONS

Developing a diagnostic-prescriptive model for providing services to teachers of handicapped children in a wide geographical region such as the Commonwealth of Pennsylvania proved to be a complex and formidable task. Many strategies and activities were initiated, developed, revised, deleted and restructured. Several major obstacles were identified and strategies developed to surmount them. In some cases the solutions were totally acceptable and appropriate while in other circumstances they could only be partially utilized or proved to be without merit. The difficulties experienced were not merely with the solutions proposed but were created as much by the specific geographical characteristics of the regions served and the socioeconomic structure. That is to say, while a solution may be possible by the strategies proposed in one situation, the same strategies are inappropriate in other settings. A simple answer is often not a practical alternative in all cases.

Based on the success achieved, considering the thousands of prescriptions successfully implemented by the staff of the project, it seems clear that the eight (8) step diagnostic-prescriptive model identified as SER-LARS has the potential to serve most teachers of handicapped children when faced with programmed problems. This model clearly needs close monitoring in its implementation. Due to its requirement of strict record keeping by teachers, some revisions may be in order. Rather than cross-referencing and

cross-indexing learning objectives with method and material histories all presented by individual child data, it would seem more appropriate to expand the learning objectives histories to include summarized information. Learning objectives should be listed by content descriptor. Methods and materials histories should be summarized for large numbers of children. Materials would be directly listed by title rather than by a code number requiring perusal of another document. This would result in a self-contained document usable by teachers, who having identified the learning objective they wish to implement, will also be able to see how other teachers have successfully performed the same objective on other occasions and which materials and methods were used. In this way, teachers, supervisors, district and I.U. special education personnel could adopt only those portions of the total eight (8) step model relevant to their own needs and circumstances.

Another major hurdle still to be bridged is the lack of uniformity currently in use in the identification and retrieval of special education instructional materials. Teachers in the classroom, school systems and instructional material centers have developed their own unique procedures for classifying and inventorying special education instructional materials. This results in a lack of clarity among the users. In trying to resolve this dilemma, a great deal of time and resources were expended. As a result of this effort, a system for the consistent identification and inventorying of special education instructional materials

has been developed by William Nelson and Gisele Thornton which was sponsored under the auspices of Pennsylvania's Division of Special Education. The system is known as the "Special Education System for Instructional Material Identification Information" (SESIMI). This system has proved to be operational and has provided consistent information on the existence of special education instructional materials in the field; however, it is in need of further field testing on a larger scale. It is recommended that the National Center for Educational Media and Materials for the Handicapped (NCEMMH) consider funding such an effort in one of the single or multi-state regions approved in the new ALRC network. Pennsylvania, because of its developmental efforts and commitments to the task, would be willing to serve in this capacity.

A great deal of knowledge and data has been generated by the National Regional Resource Center of Pennsylvania during its four years of planning and operation (See Appendix A). It seems apparent that the other existing Regional Resource Centers have done the same. Because of the immensity of the tasks charged to the respective centers, very little opportunity ever occurred for sharing this knowledge and data. Assuredly, this situation resulted in redundant activities and the needless expenditure of time and resources. A central clearing house for processing and evaluating the results of current and future efforts of the Regional Resource Centers for documentation throughout the network appears warranted. It is recommended that such a body staffed by a cadre of competent consultants and evaluators with diverse special education background

is warranted.

A national data bank, into which the results of diagnostic-prescriptive information collected can be stored, also appears as a high priority concern. Information relating learner descriptors, learning objectives, and associated methods and materials can then be stored and developed in a central location, allowing all special education personnel across the country to have access to a diverse collection of successful educational experiences. This would ultimately result in a special education curriculum appropriately described through a series of specific learning objectives for all handicapping conditions. Such a resource would appear to be invaluable.

In working with a diverse population of special education teachers as well as a significant number of regular education teachers, it became apparent that in-servicing relative to the diagnostic-prescriptive process must be expanded. It still is apparent that many teachers have difficulty in systematically assessing a child's strengths and weaknesses. Moreover they are not properly prepared to identify appropriate learning objectives for a child experiencing educational difficulties. Packaged programs such as training aids and lengthy in-services are required to overcome this difficulty. While this type of effort can improve the competencies of teachers in the field relative to their expertise in the diagnostic-prescriptive process, it will have little effect on future special education teachers. Efforts on the part

of BEH, state agencies and institutions of higher learning must be directed toward the end of pre-service training in diagnostic-prescriptive procedures and resources. Earmarking future grants or available training funds might affect special education teacher-training programs in this manner.