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ABSTRACT

A study was conducted to determine the teacher competencies needed in order to develop valid and effective occupational learning experiences for educable mentally retarded (EMR) students based on available diagnostic test data and information. Four-member teams were selected from each participating school (four secondary and two postsecondary schools). Each team had a special educator, a vocational instructor, an audiovisual specialist, and a counselor, special educator, or vocational educator depending on the most effective team organization within the participating school. An action research design was used. As vocational teachers on the teams identified problems in modifying instructional materials, teaching strategies, and classroom procedures, team and staff members designed solutions. These solutions were then implemented by the vocational teacher and evaluated. Transportability of the developmental experiences and the resulting products were assessed with teams in one or two of the other participating schools. Three workshops were conducted focusing on (1) identifying participants' competencies in relation to those needed to develop effective instruction; (2) techniques for effective communication, task analysis, rewriting reading materials, and developing mediated instruction; and (3) teaching techniques, classroom management strategies, and practical evaluation. Some of the competencies which vocational teachers need to acquire are use of evaluation information in designing and managing instruction, behavior observation skills, performance evaluation techniques, individualizing instruction for EMR students, identification and restructuring of jobs, task analysis procedures, and skill in designing concrete learning experiences. Based on the evaluation of the workshops and critical competencies identified by the participants, a 2-week workshop agenda was developed which should provide the basic competencies needed. Two computer programs were also developed to retrieve jobs from a data bank which match specified DOT (Dictionary of Occupational Titles) and present information on EMR characteristics. The suggested 2-week workshop agenda and the competency lists are included in the report. (Appendixes, bound separately, contain participant and staff vitas, materials from the three workshops, and other project materials. (JT)

FINAL REPORT

Project No. V013DVZ
Grant No. OEC-0-74-1755

Project Director
Orville Nelson

Research Associate
Diane Johnson

Research Assistant
Keith Frank

CENTER FOR VOCATIONAL, TECHNICAL, AND ADULT EDUCATION
University of Wisconsin-Stout
Menomonie, Wisconsin

January, 1976

AN INVESTIGATION OF THE TEACHER COMPETENCIES NEEDED TO UTILIZE DIAGNOSTIC TEST DATA IN PRESCRIBING OCCUPATIONAL LEARNING EXPERIENCES IN TEACHING EMRs

2

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CHAPTER I

Problems and Objectives

Summary

As students progress through a school system information on their abilities, skills and interests is acquired by the school system and staff. Students with special learning needs, such as the educable mentally retarded (EMR), usually have participated in additional tests which more specifically define their learning disabilities. Even with this wealth of data, special occupational learning experiences have not been developed for the EMR based on the information available on their learning styles. One possible reason for this lack is that vocational educators are equipped through education and experience to deal with information related to normal students and the design of learning experiences for them.

The problem of this study was to determine the teacher competencies needed in order to develop valid and effective occupational learning experiences for EMR students based on available diagnostic test data and information.

Objectives for the study were to: (1) identify the diagnostic test data and information vocational teachers need in order to make valid decisions related to the design and management of learning experiences for EMR's, (2) identify the teacher competencies needed to interpret test data, (3) determine if vocational teachers need special competencies in order to construct valid and effective learning experiences and vocational programs for EMR students, (4) ascertain if a two-week workshop can develop the vocational teacher competencies needed to provide viable learning experiences for EMR's, and (5) determine the feasibility of using an interactive computer program which the vocational teacher could use to assist in developing instructional materials for EMR's.

Three member teams were originally selected for the project. Each team had a special educator and a vocational instructor. The third person was a counselor, special educator or vocational educator depending on the most effective team organization within the participating school. After the first workshop an A-V specialist was added to each team. Six school systems, four secondary and two post-secondary schools, participated in the project.

An action research design was used. As vocational teachers on the teams identified problems in modifying instructional materials, teaching strategies and classroom procedures team and staff members designed solutions. These solutions were then implemented by the vocational teacher and evaluated. After the evaluation had been completed, necessary revisions were made and the solution was disseminated to the other teams. Transportability of the developmental experiences and the resulting products were assessed with teams in one or two of the other participating schools.

Three workshops have been conducted. The first focused on identifying the participants' competencies in relation to those needed to develop effective vocational instruction for EMR students. In the second workshop techniques for effective communication, task analysis, rewriting reading materials and developing mediated instruction were presented. Teaching techniques, classroom management strategies, and practical evaluation were stressed in the third workshop. Both the second and third workshops were designed based on the participants' inputs.

Some of the competencies which vocational teachers need to acquire are: use of evaluation information in designing and managing instruction, behavior observation skills, performance evaluation techniques, individualizing instruction for EMR students, identification and restructuring of jobs, task analysis procedures, and designing concrete learning experiences.

Based on the evaluation of the workshops used in the project and the critical competencies identified by the participants, a two week workshop agenda was developed. With adequate preparation and orientation of participants prior to the workshop and assistance for implementation after, the two week session should provide the basic competencies needed.

Two computer programs were developed to retrieve jobs from a data bank which match specified DOT levels and present information on EMR characteristics. The programs were written in extended BASIC.

Problem

The problem of this study was to determine the vocational teacher competencies needed in order to develop valid and effective occupational learning experiences for training EMR students based upon available diagnostic test data.

Objectives

The objectives for this research study were to:

1. Identify the diagnostic test data vocational teachers need in order to make valid decisions related to the design and management of learning experiences for EMR's.

2. Determine the teacher competencies needed to interpret diagnostic test data for EMR students.

3. Determine if the vocational teacher needs special competencies in order to construct valid and effective learning experiences and programs for EMR students.

4. Determine if a two-week workshop can develop the vocational teacher competencies needed to provide viable learning experiences for EMR's.

5. Assess the impact of a workshop experience on the vocational teacher's teaching activities.

6. Determine the feasibility of using an interactive computer program which the vocational teacher could use for assistance in developing instructional materials for EMR's.

In a recent study, Davis (1974) found that a considerable amount of information existed for each handicapped student. Usually, the school attended by the handicapped student had a cumulative record folder. In addition, if the student had contacted other agencies for assistance, additional records were available from these service agencies. Davis also found that there was a lack of articulation and transmission of information between the agencies serving the handicapped student. Often, there is also a problem within the institution in the transmission of information on students from the guidance counselor or psychologist to the classroom teacher.

Even if the classroom teachers were apprised of the diagnostic test data available on handicapped students, there is a question whether they would be able to utilize this information in making instructional decisions appropriate for these students. Most teachers are equipped through formal educational training and experience to deal with information related to the normal student. Teachers are not typically trained to interpret diagnostic data on learning disabilities, nor have they acquired the skills to develop learning activities for students with special needs.

Vocational education opportunities for the handicapped, in general, and the EMR's specifically are restricted (Hogstad, 1972). Hogstad found that vocational educators in the Wisconsin post-secondary VTAE system had a critical need for additional training related to working with handicapped students. The same results were found by Jarvis and Nelson (1972) in a study encompassing secondary and post-secondary vocational educators in Wisconsin. They found that few vocational teachers had enrolled in courses or special workshops concerned with teaching the handicapped student. Moreover, there was a distinct lack of interest and plans for enrolling in such experiences in the immediate future.

Current estimates indicate that approximately 2.3 percent of our population is mentally retarded. In 1972, the Division of Handicapped Children in the Wisconsin Department of Public Instruction identified 14,530 educable mentally retarded students who were being served by the public schools in Wisconsin. Assuming that the remaining 49 states have similar proportions of EMR's, the need for vocational training for these students is apparent and of great magnitude.

One constraint faced in meeting the need for occupational training for EMR's is the vocational educator's lack of formal preparation and experience in working with students with these special learning needs. The experiences and training of most occupational educators relates to students with normal abilities, interests, and skills. The background of vocational teachers prepares them to collect and interpret information from normal students and utilize this in making decisions related to developing curriculum and instruction for normal individuals. Therefore, an EMR student, who already has a restricted capability to cope with his environment and to acquire new skills and knowledges, also has to contend with a learning environment which is structured and managed by individuals who are not totally cogizant of his needs nor able to interpret the information which defines his capabilities and needs.

Hogstad, (1972) in her study of post-secondary vocational, technical schools in Wisconsin stated the following conclusion and listed the following recommendations.

"Conclusion: In the VTAE schools, there is a need for a comprehensive master plan for meeting the vocational training needs of the handicapped.

Recommendations:

a. Develop a model plan. A tentative model appears as Figure I-1.
b. Use existing resources as much as possible.
c. Incorporate the concept of staffing to include all involved specialists and agencies as well as the teachers in order to share expertise, to coordinate goals, and to perform an ongoing evaluation of the handicapped individual's progress and changing needs.
e. Develop an individualized program based on the needs of the individual. Provide flexibility to allow horizontal and vertical movement as required by changing accomplishments and needs.
f. Provide a referral service to other supportive services for those individuals whose handicaps are so unique or so severe that their vocational training needs cannot be met by the VTAE system.

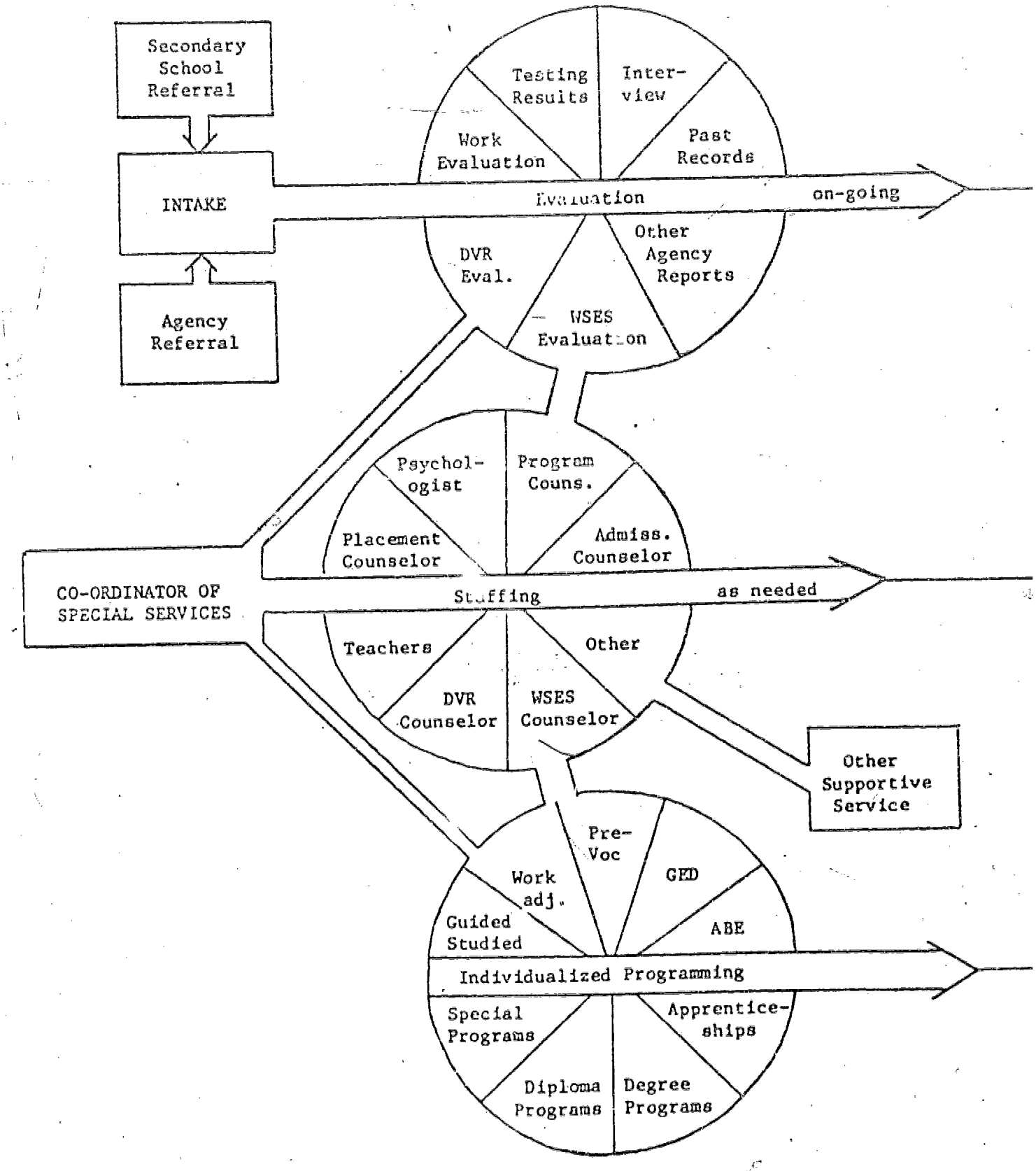


Figure I-1

Tentative Model for VTAE Services To The Handicapped

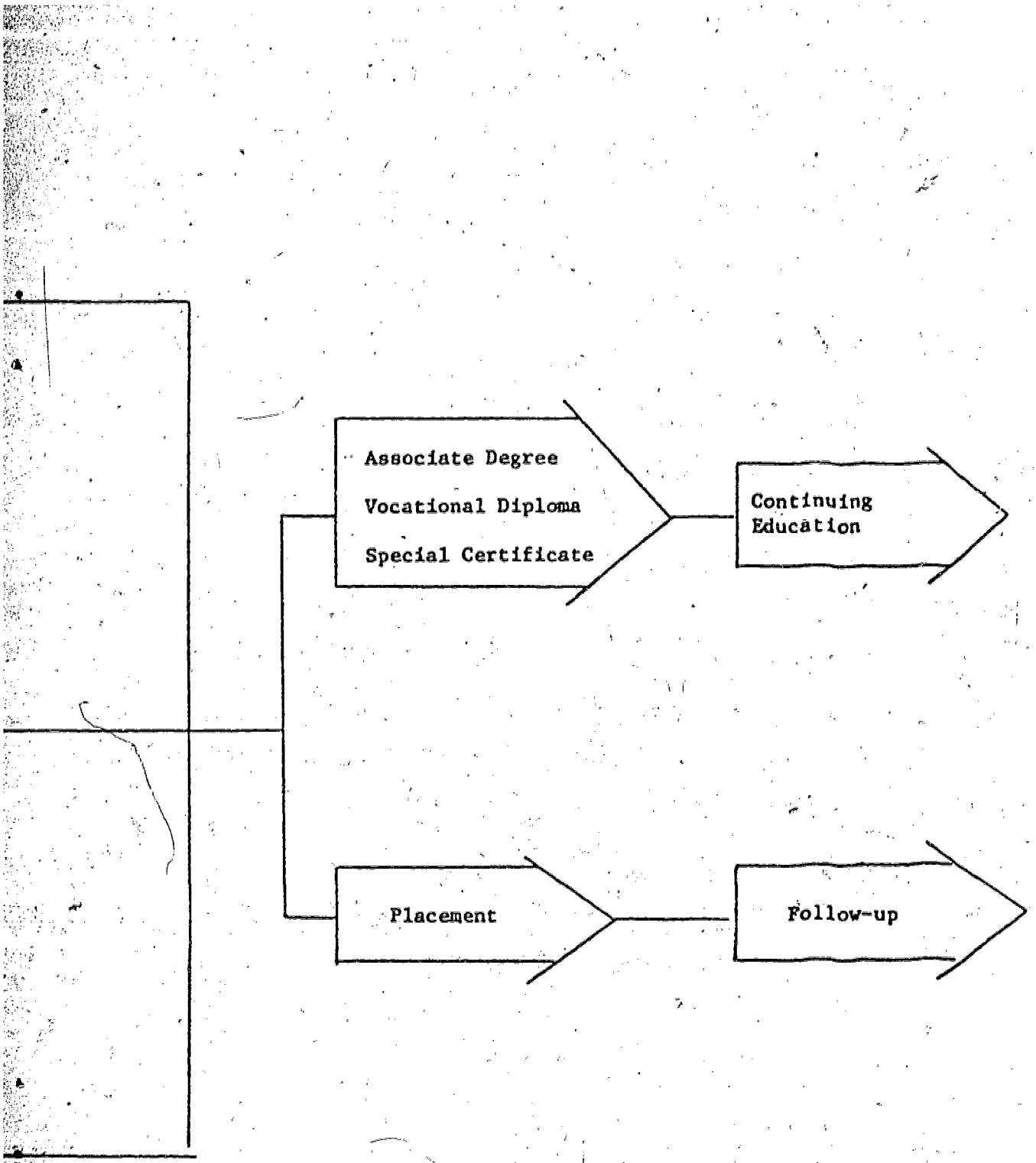


Figure I-1 (Continued)

TENTATIVE MODEL FOR VTAE SERVICES TO THE HANDICAPPED

g. Train toward an associate degree, a vocational diploma, or a special certificate.
h. Provide vigorous placement services to each handicapped trainee.
i. Inform and encourage all handicapped trainees to participate in continuing education."

Hogstad identified a comprehensive system for collecting data for counseling and for providing individualized programs for students with handicaps. This project, however, was focused on utilizing existing data and data collection techniques as identified in the intake and evaluation flow in Figure I-1 from Hogstad's study and using this information in prescribing and presenting learning experiences which were tailored to the needs of the EMR. This study was focused on working with secondary and post-secondary vocational educators. In addition, the vocational educators participating in the study were encouraged to mainstream the EMR students by providing individualized learning experiences tailored to their interests and special capabilities.

The educational decisions required on the part of the vocational educators are graphically diagramed in Figure II-2. Two flows are involved in the model: (1) information and decision flow; and (2) the vocational educational activities flow. The relationships between the decisions and the educational activities flows are shown by the arrows. For example, in terms of input, teachers must determine what the student's needs and characteristics are in order to select appropriate learning activities, and possibly present alternative learning experiences if the initial prescription was not appropriate. Finally, decisions must be made in terms of the employability and level of employability of the graduates or people who leave the program. The research activities in this project were designed to identify the types of information needed in each of these decision areas in the decision flow and to determine the decision making competencies teachers must have in order to generate the appropriate learning environment for the EMR student.

In order to focus the research efforts on this project, the scope of the study was limited to investigating the utilization of diagnostic test data in developing individualized vocational instruction for the educable mentally retarded (EMR).

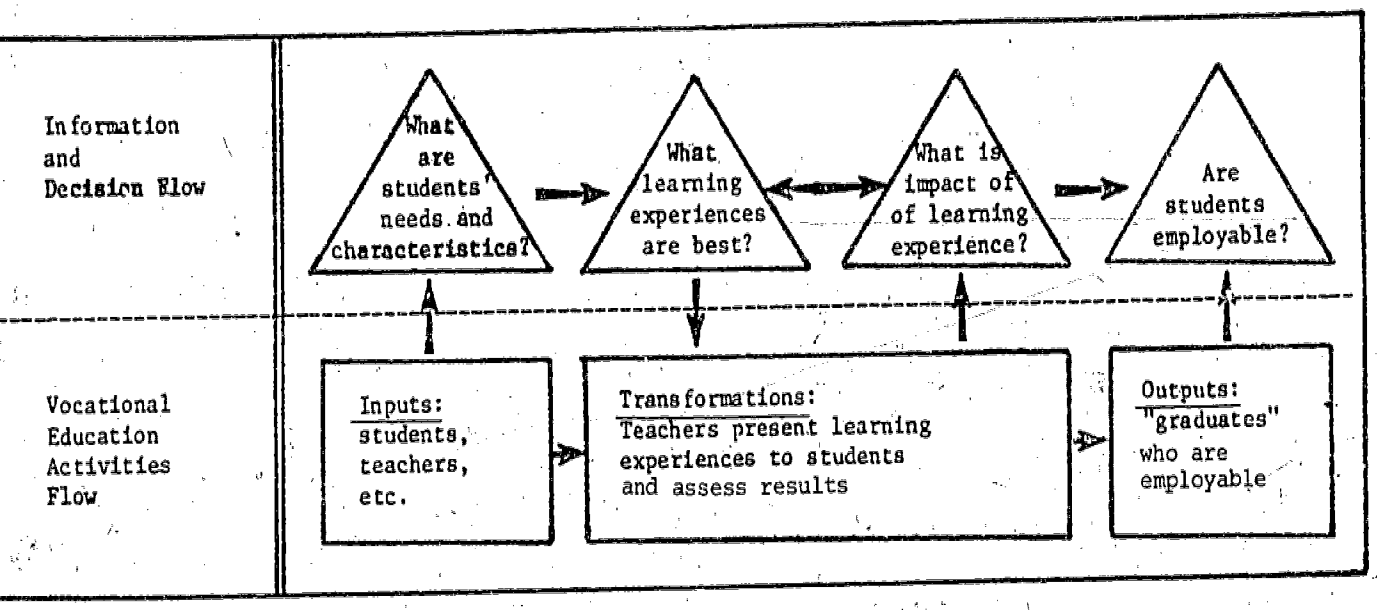


Figure I-2

Vocational Education Decision Model

CHAPTER II

Methods and Procedures

Research and Development Strategy

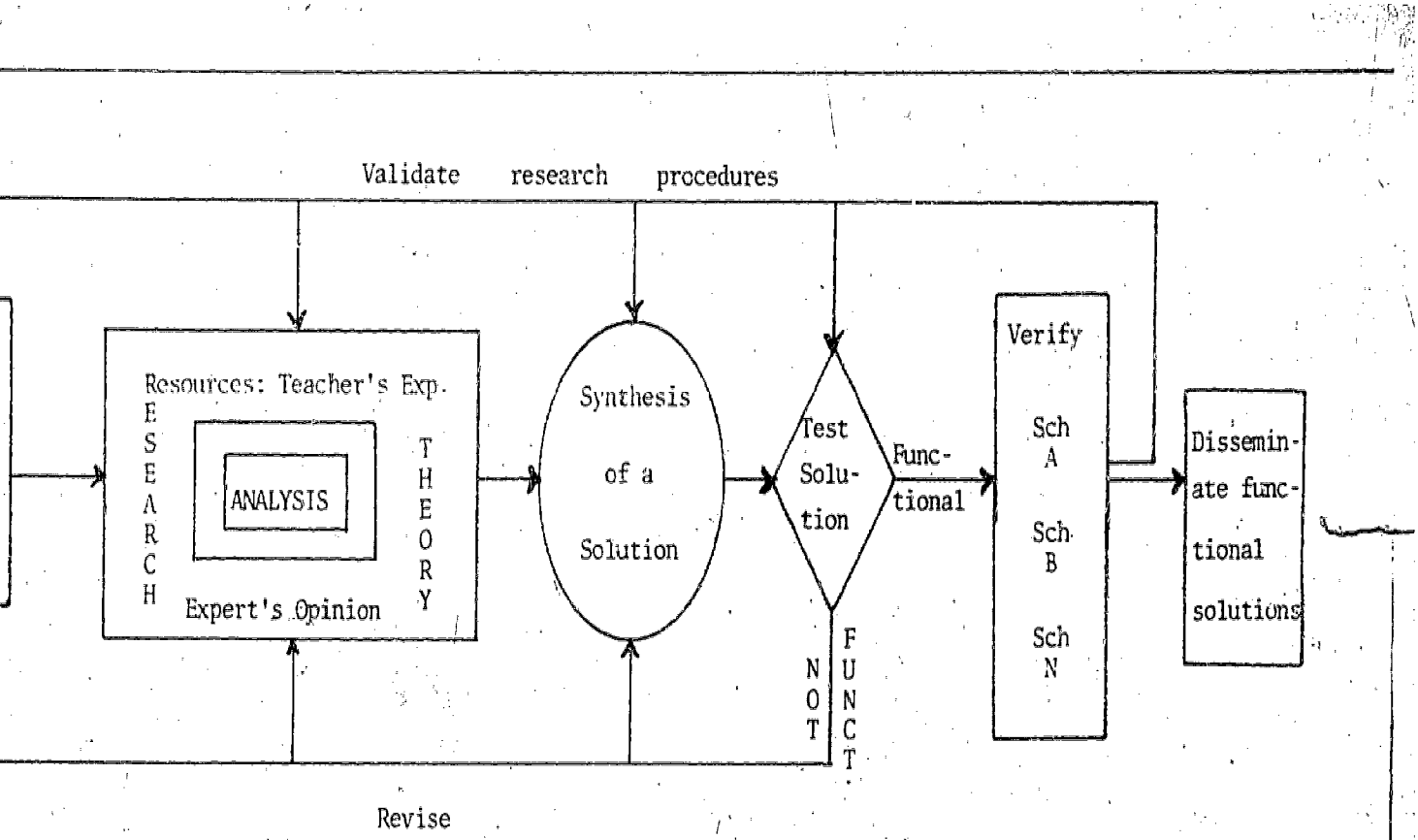
A variety of research techniques were available for use in this project. Some required highly controlled settings in order to compare experimental and control groups to assess the differential impact of one or more educational treatments. Others involved a large scale tryout of an educational program or methodologies with an evaluation to determine the changes which took place over a period of time. Neither of these approaches were appropriate for the Vocational Teacher Competency-EMR (VTC-EMR) Project. The first required modifications in the classroom assignments for students and instructional assignments of teachers which would be difficult to carry out. Also, it would have created a learning environment which was quite atypical to that normally found in school settings. The second methodology required a fairly long time span and a number of students and teachers. The resources required to carry out this type of research were extensive. Since the resources in this project were limited in amount and time span, an action research approach was used.

The research process used is described graphically in Figure II-1. The starting point of a research project is a need. A need arises from a problem or an opportunity. Problems are situations or decisions for which no obvious response or answer is available. For example, a teacher may have an EMR student who does not learn effectively from the present mode of instruction and no alternative modes of instruction which would be effective are available to the teacher.

An opportunity is a set of circumstances which provides vocational teachers a chance to develop new materials, teaching methods, or programs which would not normally be available to them. This project provided an opportunity to develop improved vocational instruction for EMR students. To the degree that the products from this project are transportable, it will contribute to the solution of a nation-wide problem.

After a need has been identified the problem or opportunity is analyzed and studied to determine an effective solution or response. Knowledge, skills, materials and solutions to similar situations are assembled and utilized in creating a valid solution. For example, the problem mentioned previously might result in the development of audio-visual presentations in which students could control the pace at which information is presented and could review as they desire.

After a solution has been created, it must be tested to determine its adequacy and validity. This entails having teachers and students use



ntext = Typical vocational programs at the secondary and post-secondary levels. Research support services provided by the project staff.

Figure II-1: Applied Research Model

the product and evaluate its effectiveness. The tryout of a research product will provide data for revising it. If major revisions are made in the product one would test the solution again. If minor revisions are made one can proceed to the verify stage. It should be noted that in some instances the product may be of such low value that it would be discarded and an entirely new solution developed.

In the verification stage new teams try out the research product to determine whether it is functional in their situations and environments. This tryout determines whether the product can be utilized by someone other than the original team of researchers. If this tryout is successful there is evidence to indicate that the product can be utilized in a variety of situations by a number of teachers. If the tryout is not successful it may mean that additional information is needed in order to make the product functional for others to use.

After this cycle has been completed with a given problem or opportunity the team applies the same research steps to a new problem or opportunity. In actual practice, a team may have several research products in process at the same time. Often the study of a particular problem or need will lead to the identification of additional problems and opportunities. These can then be attacked in the same manner.

One of the basic and critical elements in this process is the identification of the problem or opportunity. Since this phase triggers the remaining activities it is not possible to conduct a meaningful research program without the identification of a valid need. The most logical place to identify needs was where EMR's were being served, thus vocational and special education teachers occupied a critical role in the research process in this project. It was very important that actual problems and opportunities encountered as teachers work with EMR's be identified. After these needs had been identified, the project staff members at UW-Stout worked with the participating teams in creating solutions and testing them. Once the solutions had been refined to the point where they were functional, arrangements were made to have other participating teams in the project try them out.

Feedback from the test and verification phases provided a basis for evaluating the strategies and techniques employed in constructing solutions. In addition, the feedback included information on the types of competencies needed to provide effective vocational instruction for EMR students.

Participating School Systems and Staff

When the participating teams were selected an attempt was made to identify schools which were at various stages in developing vocational education programs for EMR students. In addition, consideration was given to selecting participants who had taken various approaches to developing vocational instruction for students who had EMR learning styles.

Two requirements were established for the selection process. First, there had to be representation from the secondary and post-secondary systems in Wisconsin. Second, participants had to indicate an interest and willingness to participate in the project. In addition, the project director wanted to identify secondary and post-secondary schools (VTAE) in the same VTAE district. However, this was not established as a necessary criterion for selection for the project.

After the parameters for the identification of the secondary and post-secondary schools had been established, the project director contacted the Wisconsin Board of Vocational, Technical and Adult Education (WBVTAE) which has responsibility for the post-secondary VTAE schools in Wisconsin and the Wisconsin Department of Public Instruction. Staff members in these agencies who worked with special needs programs identified a number of schools and the types of programs being conducted at each school. Based on the information received from WBVTAE and DPI, the project director identified six school systems which met the criteria established. These school systems were contacted and invited to participate in the project. After varying periods of consideration, all six agreed to become a part of the project.

The six school systems participating in the project were:

Secondary Level Schools	Post-Secondary Vocational-Technical Schools
Eau Claire North High School	
Madison East Senior High School	Gateway Technical Institute (Racine)
Oshkosh West Senior High School	VTAE District 1 (Eau Claire)
Racine Public School System	

The geographical location of these schools is given in Figure II-2. A description of each school is given in Appendix A.

Oshkosh West Senior High School was just initiating a program for EMR students in vocational classes. Madison East Senior High School was in the second year of a special program which provided the basic vocational skills required to succeed in advanced vocational education courses. In the Racine Public School System, special industrial education classes had been established to serve the needs of EMR's and reluctant learners. These classes were in their second and third years. At Eau Claire North Senior High School the special education teacher had a well-developed and effective work experience program, and the industrial education teacher had experience in working with EMR students on an individual basis. VTAE District 1 was initiating a project to provide a special education instructor and special tutoring assistance in selected vocational programs. At Gateway Technical Institute a comprehensive program of services and assessment had been established to assist students with special needs. This mix of schools provided a rich resource of prior and on-going experiences for utilization in the project.

The initial teams of participants from each school were identified as

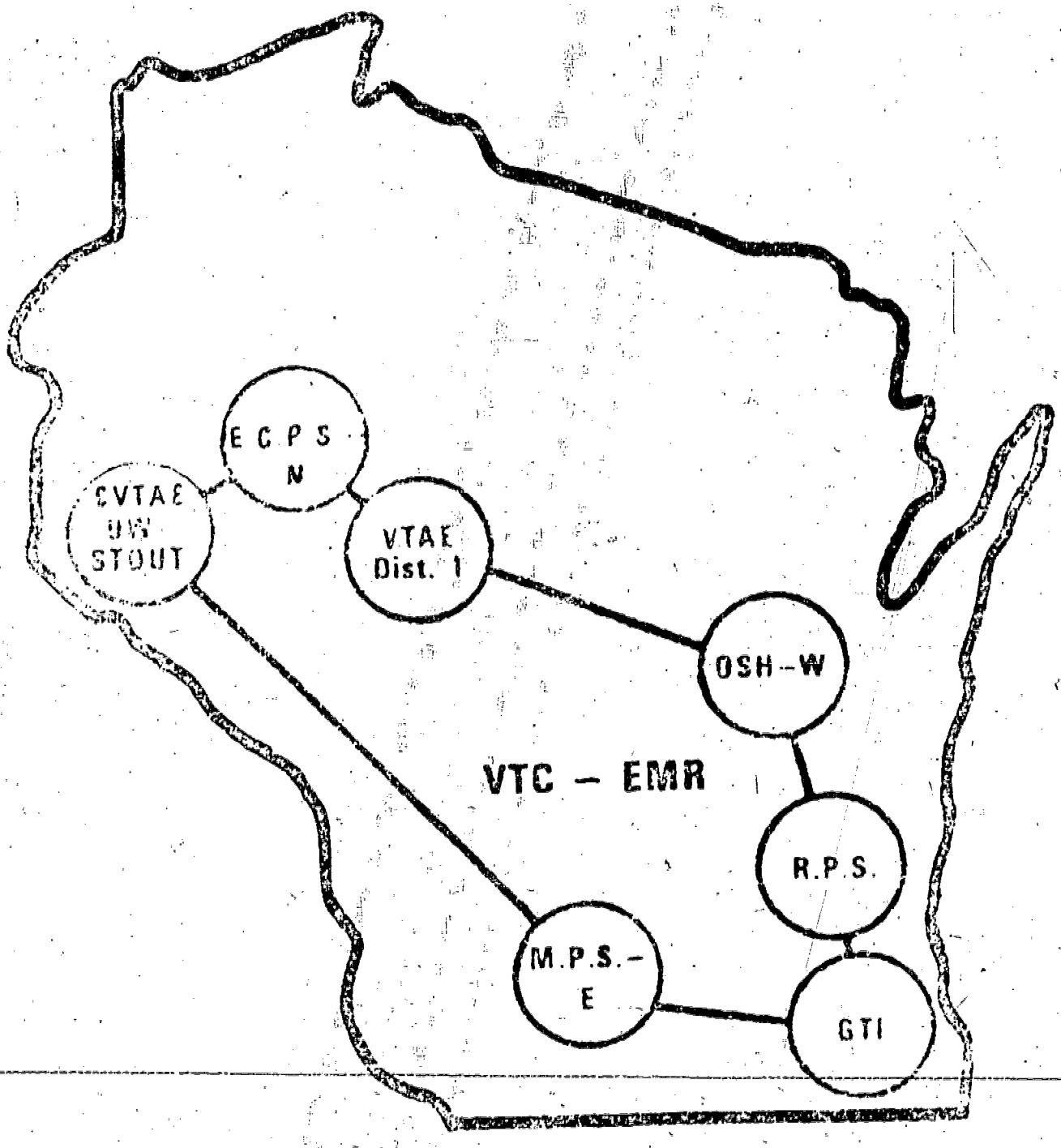


Figure II-2: Geographical Location of Participating Schools

stipulated in the project proposal. Each team had a vocational teacher, special educator, and a counselor or work evaluator. During the first meeting of the participants, several commented that an additional team member was needed if effective vocational instruction was to be developed. This team member was a media specialist. After a review of the project budget, it was determined that sufficient resources were available to cover the cost and stipend for including a media specialist in the second and third workshops scheduled for the project. Participating schools were contacted to determine their interest in identifying a media specialist to participate in the project. Almost immediate response was received from each of the six schools indicating that a media specialist would be added to their teams.

The vocational teachers involved in the participating teams came from the areas of Home Economics, Food Service, Graphic Arts, and Metals. The educational experience of the team members ranged from two people who had less than a baccalaureate degree to several who had masters degrees plus additional credits. Table II-1 gives a summary of the educational experiences of the participants in the project. The formal degree work and the participants' involvement in special workshops related to teaching EMR students are summarized in this table. A review of the information provided by participants revealed a breadth of educational experience in terms of degree work and special experiences related to teaching EMR students. This variety provided an ideal set of experiences and perspectives for the project's research work.

Advisory Committee

One of the first activities in initiating the project was to identify an Advisory Committee. An attempt was made to obtain representation from educational agencies, state agencies, business and industry, and university teacher educators. The Wisconsin Department of Public Instruction was contacted and asked to identify a staff person involved with special needs education and another staff person from the Bureau of Manpower and Career Development. The Wisconsin Board of Vocational, Technical and Adult Education was also contacted and requested to identify persons in each of these two areas. State consultants at the DPI and WBVTAE were asked to identify vocational teachers who had experience in the field of teaching EMR students. As a result of this request, several vocational teachers were identified and two agreed to serve on the committee. A complete list of the Advisory Committee members and the fields they represent is given below.

Robert Brock, UW-Stout Teacher Educator (Special Education)
Sandy Gill, UW-Stout Teacher Educator (Home Economics)
Pete Hendrickson, Employer
Carol Hogstad, UW-Stout Teacher Educator (Special Learning Needs)
Roland Krogstad, WBVTAE - Vocational Education and Vocational Education Research
Audrey Lehman, Madison East Senior High School, Secondary Vocational Teacher of Special Needs Students

TABLE II-1

Educational Experiences of Participants
in the Vocational Teacher Competency-EMR Project

Type of Educational Experience	Number	Percent
Degree Work:		
Less than B.S.	2	8.7%
B.S.	2	8.7%
B.S. plus	4	17.4%
M.S.	10	43.5%
M.S. plus or dbl. masters .	5	21.7%
Totals	23	100.0%
Participated in one or more workshops or seminars on EMR	15	65.2%

Charlotte Martin, WBVTAE (Special Needs)
Rose Nelson, Nicolet VTAE District - Vocational Teacher of Special Needs Students
Thomas O'Brien, Lightfoot School - Secondary Vocational Teacher of Special Needs Students
Russell Paulsen, North Central VTAE District - Vocational Research
Preston Smeltzer, DPI - Vocational Education
Perry Smith, CESA 6 - Special Needs
Thomas Stockton, DPI - Special Needs
Lloyd Tindall, CSVE, UW-Madison - Special Needs Projects

The Advisory Committee was convened in September, 1974 for the first meeting. Project objectives and the framework for the research were reviewed in the morning session. In the afternoon session, committee members reviewed the agenda for the first workshop and suggested revisions. Possible resource persons were also identified.

The second meeting of the Advisory Committee was held on April 21, 1975. The purpose of this meeting was to review the activities in the first two workshops, the activities of the project staff, and the draft agenda for the third workshop. Approximately one-half of the meeting was devoted to discussing the agenda for the third workshop. Many very helpful comments were received which were later utilized in revising the agenda. In addition, the committee members were able to suggest several presenters for the workshop agenda. Three of the persons recommended were able to participate in the workshop III. Each one made a significant contribution to the workshop. (A copy of the agenda and the minutes for the second meeting are included in Appendix D.)

The Advisory Committee for the project was active and made a significant contribution to the design of the research activities and the workshops.

Project Staff and Facilities

The project director was fortunate in being able to secure a competent staff to assist with the research activities and conduct of other project activities. In initial discussions of the project with UW-Stout staff members, a research specialist from the University staff was identified. However, changes in his department's staff necessitated that he devote his time to teaching. As a result, the project director had to seek a research specialist late in the summer of 1974. Through a series of contacts with CESA agencies in the state, a competent person was identified to occupy the role of research specialist.

Mrs. Diane Johnson was hired for this position. Mrs. Johnson had experience as a special education teacher at the high school level and had also worked for a year as project director. In the role of project director, she had developed two handbooks that identified jobs which were especially fitted for EMR students. These handbooks also contained technical terms used in these jobs, basic tasks, and a guide for the teacher. In addition, resource kits were developed to assist in providing exploratory experiences related to these jobs. With a degree and experience in special education as well as a project research experience, the research specialist complimented the skills of the project director.

A graduate research assistant was also hired for the project. Again the project director was able to obtain a competent person who had experience in teaching industrial education, working in industry and managing a sheltered workshop. Keith Frank also had a master's degree in Guidance and Counseling. During the time Keith was employed as a graduate assistant on this project he was taking courses in the areas of assessment and remediation of learning difficulties.

The project director's background was in the field of vocational curriculum development and evaluation, research, and statistical analysis. In addition, the director had had experience in managing a number of research projects. These experiences were helpful in managing and conducting this project.

Copies of the vitas for the staff are included in Appendix E.

Facilities

The Vocational Teacher Competency-EMR Project was housed in the facilities occupied by the Center for Vocational, Technical and Adult Education at UW-Stout. The Center is housed in the Applied Arts Building. This facility is approximately two years old and provides the latest in modern instructional media and equipment, office space, and data processing equipment. Office space was provided for the project. Also, clerical space was provided for the project's secretary.

Space for the workshops was available in the Applied Arts Building. Four classrooms and a resource area were provided for the workshops. In addition, two labs were available in which instructional materials and processes could be developed. A complete set of A-V projection equipment and materials were available for the project staff.

The research activities in the project were supported by a complete information processing area. Project staff members had access to an optical scanner, CRT, ASR 38 Teletype, ASR 33 Teletype, and plotter which were linked to a time-sharing computer on UW-Stout's campus. A variety of analysis programs were available for use. And, the staff had access to the equipment needed to develop the computer programs required to attain the project's objectives.

Research Activity Schedule

It is the policy at UW-Stout that project activities cannot be started until official approval for the project has been received and an account number has been assigned to the project. As a result it was not possible to initiate activities to secure participating teams for the project until early June, 1974. By this time in the year prospective participating team members had already made plans for the summer. Thus, it was

not possible to identify participating teams and conduct the summer workshop originally scheduled for August, 1974. This necessitated some changes in the format for the workshops and their scheduling. These will be noted in the ensuing table.

The starting date for the project also created several other minor changes in the schedule for the activities in the project. These changes primarily involved changing dates and did not include deleting major activities. Therefore, it is the conclusion of the project staff that the program of research activities identified in the original proposal has been sustained. The original activities schedule and the revised schedule are presented in Table II-2 which follows:

Table II-2

Original and Revised Research Activities Schedule

Research Activities	Time Schedule	
	Original	Revised
1. Select Advisory Committee.	6/3-6/17/74	6/3-7/1/74
2. Select participating schools.	6/17-7/12/74	6/17-8/1/74
3. Analyze teaching decisions.	6/3-8/1/74	6/3/74-5/1/75
4. Design workshop I agenda.	6/24-8/1/74	6/24-9/6/74
5. Conduct Advisory Committee meeting.	7/25/74	9/6/74
6. Conduct workshop.	8/5-8/16/74	9/26-27/74
7a. Participating teams work with EMR's.	9/74-5/75	Same
7b. Project staff visits centers.	-	At least once during the year.
8a. Plan workshop II.	-	10/1/11/29/74
8b. Conduct workshop II.	1/75	1/27-28/75
9. Hold second Advisory Committee meeting.	1/75	4/21/75
10. Project staff collects and analyzes feedback.	9/74-5/75	10/74-5/75
11. Sample of EMR's complete work evaluation.	3-5/75	Same

Table II-2 (Continued)

Research Activities	Time Schedule	
	Original	Revised
12. Conduct third Advisory Committee meeting.	5/75	10/75
13. Conduct workshop III.	6-7/75	6/9-6/20/75
14. Workshop participants try out materials and strategies.	9-10/75	9/12/75
15. Project participants conduct dissemination conference.		11/7/75
16. Project staff evaluates effectiveness of materials and strategies.	9/10/75	9/12/75
17. Final report.	10/75	12/75
18. Project completed.	10/31/75	12/75

One major activity was added at the suggestion of several of the participating team members. A dissemination conference was conducted in Madison, Wisconsin early in November. All local vocational education coordinators and VTAE instructional services administrators received announcements of the conference. More than one hundred secondary and post-secondary special and vocational educators attended. This conference helped to satisfy the many requests for information received and encouraged the participants to complete their materials for the November showing.

Summary

Given the problem of the study and the resources available, it was decided that an applied research approach would be most feasible. An applied research approach which actively involved classroom vocational and special education teachers in identifying problems and needs, developing solutions, and testing them with EMR students was designed for this project. Utilization of this approach brought the project staff in direct contact with the problems faced by classroom vocational teachers as they instructed EMR students. An Advisory Committee comprised of persons involved in the education and employment of EMR students was identified and actively participated in the design and scheduling of the project activities.

CHAPTER III

Products and Results

The format for this chapter of the report is based on the original objectives defined for the project. The presentation of the results is focused on the objectives. For each objective a rationale for the research activities undertaken is given. This rationale is based on the staff's review of literature and research activities undertaken in the project. After the rationale a brief description of the project activities related to the objectives is given. Data collected through the research activities are then presented. The concluding section for each objective discusses the data and presents the results.

Diagnostic Test Data Vocational Teachers Need

At the first meeting of the project's Advisory Committee, several questions were raised related to the meaning of diagnostic test data. The project director's experience both in research and teaching had involved the development and use of a number of data collection techniques. Therefore, the original intent in the proposal was to explore all types of information which would help the teacher identify the strengths and weaknesses of the learner. Some members of the Advisory Committee viewed diagnostic test data more narrowly and defined it to encompass only specific standardized testing information. It was the concensus of the Advisory Committee that the project look at all types of information available on the EMR learner. Thus, the more general definition of diagnostic test data was utilized. Any information which assisted the vocational teacher in identifying the vocational interests, capabilities, potential, and deficiencies. were included in this study.

After reviewing research literature on learning styles, teaching strategies, and educating mentally handicapped students, it became apparent that effective vocational instruction for EMR students would have to be based upon teaching actions which were tailored to the needs of individual students. Basic to this type of instruction was a vocational teacher who could make decisions based on information related to the students' abilities, capabilities, and deficiencies. These decisions then had to be transformed into teaching actions which were utilized to provide valid learning experiences for EMR students.

For the research carried out in this project teaching was viewed as a decision-making process. Figure III-1 defines four major decision areas and the content within which they take place when teaching vocational subjects. The context influences all decision areas. The nature and characteristics of jobs must be considered when making the specific teaching

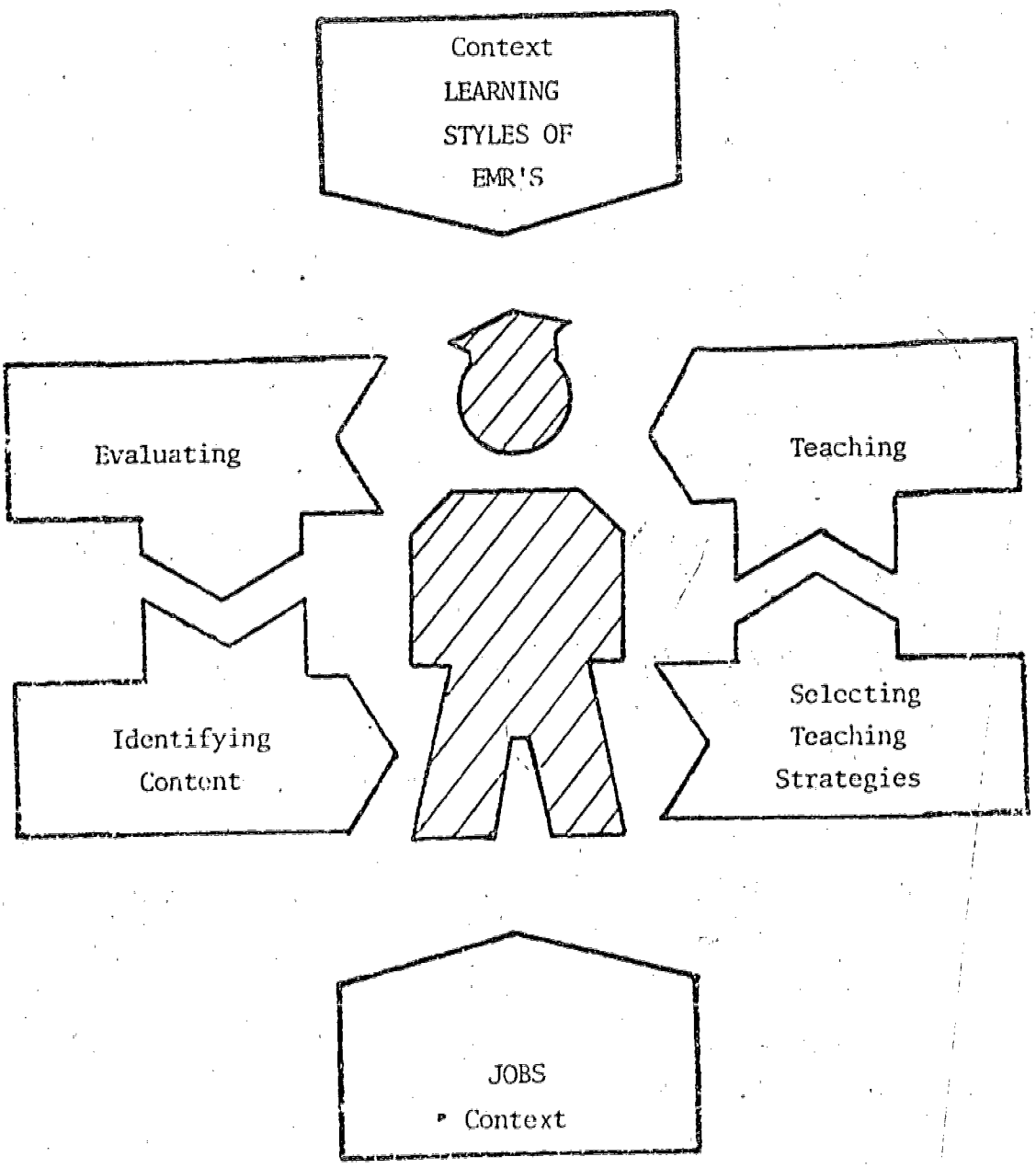


Figure III-1: Vocational Teacher Decisions

decisions. The vocational teacher must be aware of jobs which have appropriate content and life styles for learners of various capabilities and interests. In the traditional class the learning styles or ways in which persons learn most efficiently would not be of as much concern as they are when working with EMR students. When students have unique learning styles and have significant limitations and potential, it is important that these constraints be considered when selecting content and planning instruction. Selection of content and the design of the instructional process must be completed in a form that will enhance the strengths of the learner and remediate those areas of deficiency within which the learner will have to have some competency when performing on the job.

Four major areas of decision making by the vocational teacher are graphically identified in Figure III-1. Decisions in each of these areas are further explained in Figures III-2 through III-5.

Content decisions involve the identification of appropriate jobs, determination of critical tasks within these jobs, and specification of the skills and competencies required to perform on the job. From this information the instructor must be able to synthesize a course structure and develop behavioral objectives. Care must be taken in identifying jobs so that they have tasks which can be done by persons who have limitations in the scope and depth of activities which they can perform at the level required on a payroll job. Care must also be taken to not confine the potential of the students by identifying only very low level jobs. After the jobs have been identified, task analyses must be done to determine the tasks, skills, and competencies required on the job. Information from the task analysis will provide a basis for writing behavioral objectives for instruction and designing the course structure. Content decisions and their interaction with the learning styles of the EMR and the world of work are shown in Figure III-2.

As depicted in Figure III-3, teaching strategies are based on the nature of the content and the learning styles of the learner involved. Decisions to be made in selecting teaching strategies include the modes of instruction to use. For example, should an individualized approach or a group approach be used. Since there are a number of individualization techniques and combinations of individualized and group approaches, a variety of teaching techniques may be utilized. Other strategy decisions include selection of the motivational and reinforcement system, design of the evaluation system, selection of media, determination of the pace of instruction, specification of the instructional element size, and the identification of the entry point in instruction. The prior research reviewed indicated that the reinforcement techniques utilized should be appropriate to the learner's interests and values. Also, reinforcement needed to be immediate and provided frequently, especially during the initial phases of instruction. Research also indicated that the size of the instructional element needed to be small and that new elements should be presented only as the learner was ready. Strategies must also be selected which are appropriate for the content to be taught.

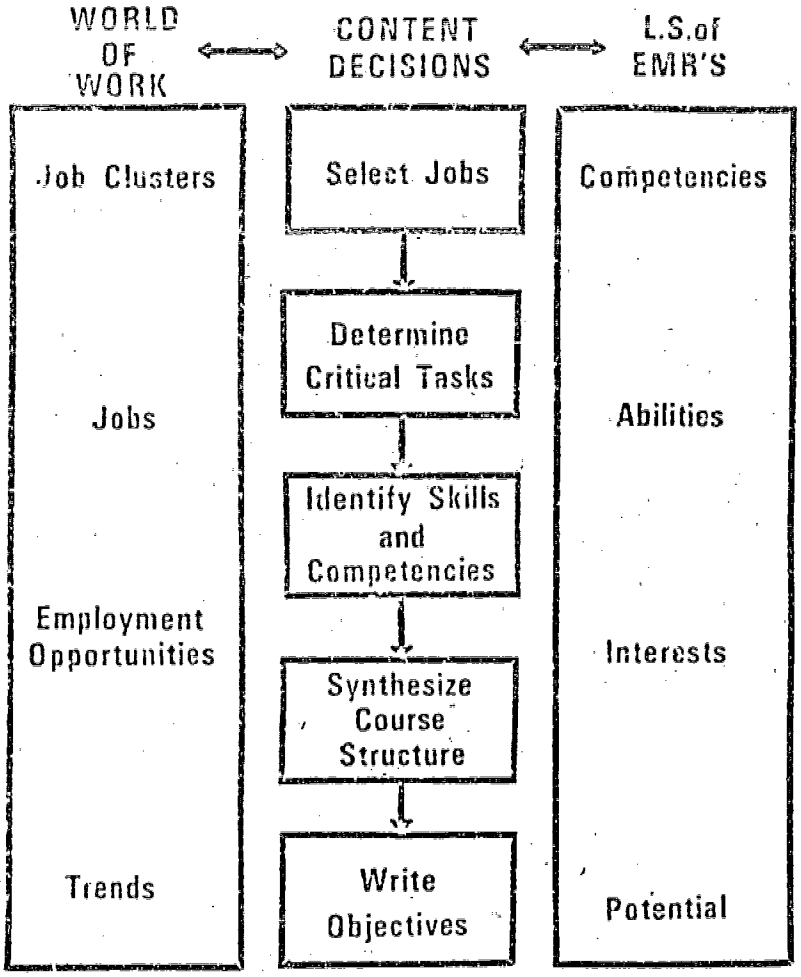


Figure III-2: Content Decisions

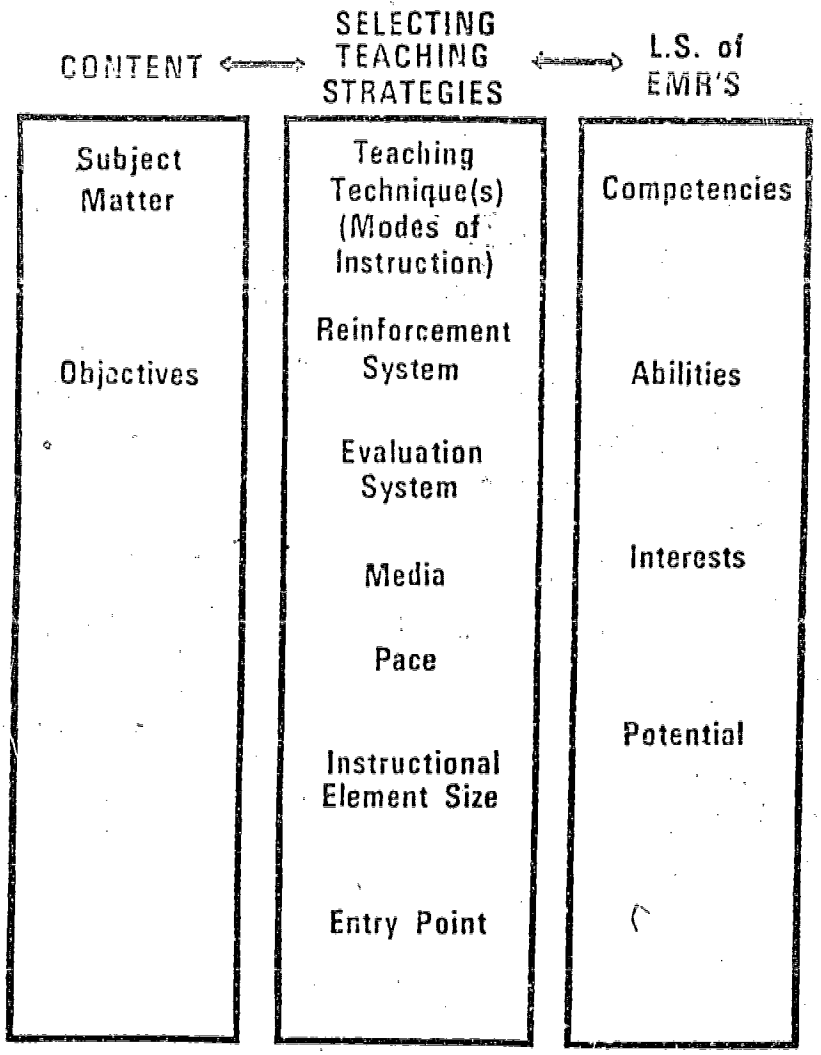


Figure III-3: Teaching Strategies Decisions

Decisions in the content and teaching strategies areas provide the basis for valid instructional plans. The teaching area encompasses those activities and decisions required to carry out the plan. As graphically noted in Figure III-4, teaching decisions involve selection of the appropriate mode with which to present content, determination of the learner's progress, identification of when to reinforce the student, and deciding when to initiate a new learning activity. A teacher must select teaching methods which present content in a concrete, non-theoretical, and non-symbolic manner. Sufficient time must be given for the learner to try out, apply, and establish basic job skills. Therefore, teaching techniques must be selected which allow students to learn through concrete and hands-on experiences with the tasks encompassed in the job or cluster of jobs for which they are preparing.

During the learning process, the vocational teacher must monitor the students' progress and provide verbal and other types of reinforcement for their activities. When it becomes obvious that the EMR learner is not acquiring skills through a particular approach, the teacher must structure a new learning activity and cycle the learner through it.

Another set of decisions is involved in evaluating attainment of course objectives, effectiveness of teaching strategies, and quality of the learning activities. If feedback is to be continuous to a learner and the learning experiences are to be concrete as indicated in previous sections, then the evaluation procedures used must be continuous and competency based. Teachers must make decisions in relation to the degree to which the learning objectives are being attained and the effectiveness of the learning activities. In addition, if the information collected through the evaluation is to be most useful it needs to convey data on the causes for an inadequate performance. The characteristics of an evaluation system appropriate for EMR students is given in Table III-1. This system is based on the input and output characteristics that persons with EMR learning styles and the nature of most jobs. Heavy emphasis is placed on the direct evaluation of doing activities which are typical to the jobs for which the students are preparing. Second and third order evaluation of the skills and procedures utilized on the job through written tests and written reports are avoided.

Evaluation decisions are made within the context of the content being taught, the teaching strategies being utilized, and the learning styles of the EMR students. These factors must be taken into consideration when the skills and competencies to be evaluated are identified and the procedures to be utilized in the evaluation are selected. To the degree these factors are overlooked the evaluation becomes invalid. (See Figure III-5 for the evaluation decisions.)

With the model on the teacher decisions just described in mind, several case studies were designed for the first workshop. (A copy of the agenda for the first workshop and the case studies are included in Appendix F.)

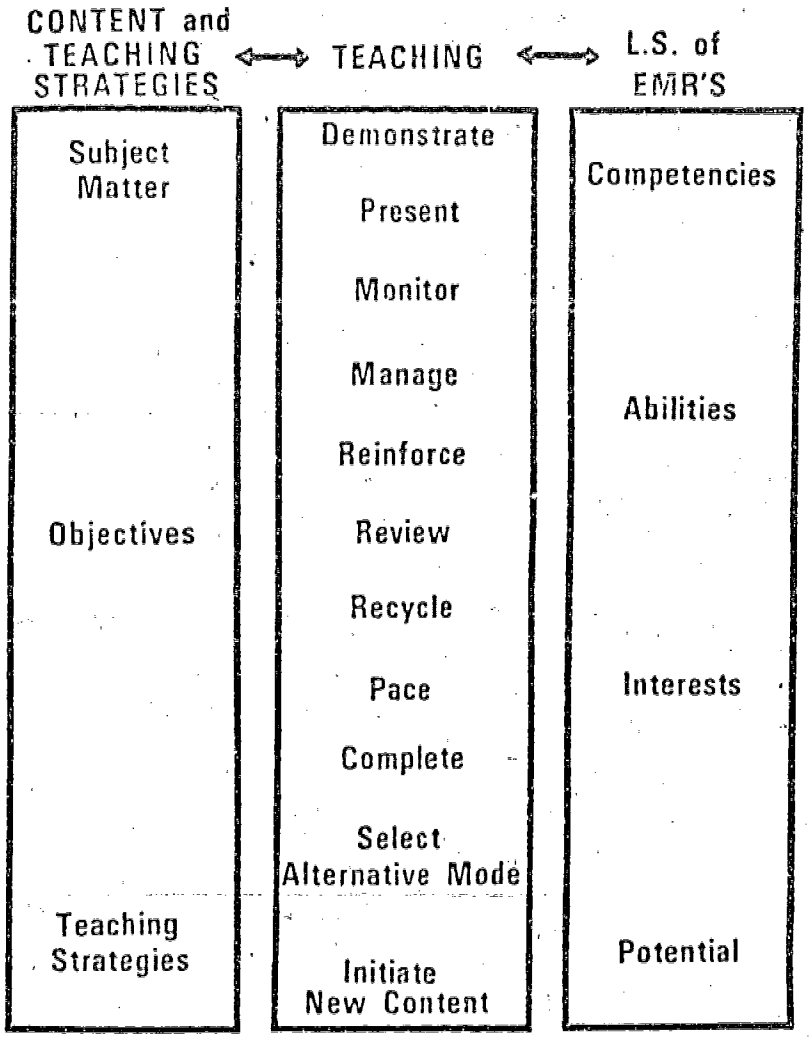


Figure III-4: Teaching Decisions

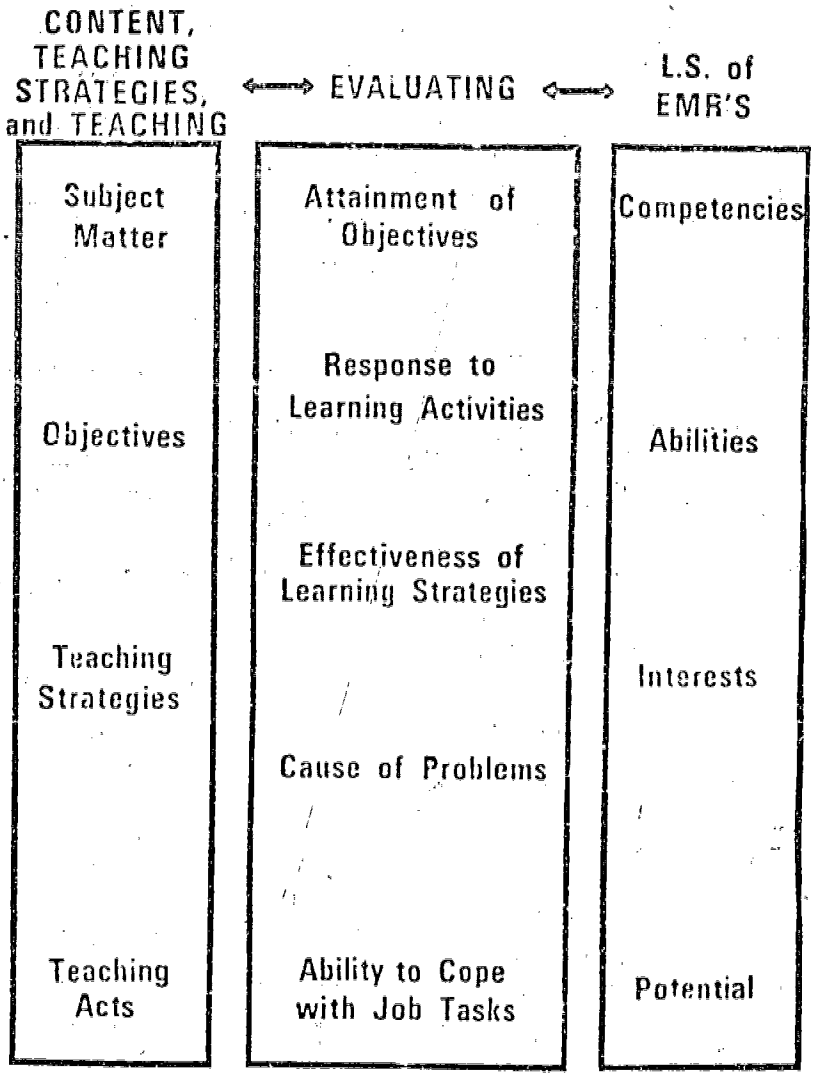


Figure III-5: Evaluation Decisions

TABLE III-1

Characteristics of An Evaluation System for EMR's

A. Competency Based

1. Based on valid tasks.
2. Concrete evaluation tasks, problems and questions.

B. Based on a Developmental Design

1. Logical sequence
2. Psychological sequence - Common Student Errors.

C. Diagnostic

1. Identify errors
2. Identify possible causes
3. Identify response capabilities

During the first workshop, the participating teams were asked to review the case studies and identify a vocational education plan for the student described. A resource person from the project participated in each discussion. Some of the case study examples were kept purposely simple with a sparsity of information. Others were quite detailed. Based on the discussions of the case studies, project staff members and the participants identified the types of data needed in order to make valid vocational education plans for EMR students. In addition to the experiences during the initial workshop, the project staff visited each of the participating schools at least once and some twice during the remainder of the school year.

Based on these experiences and the feedback from the participants, it was apparent that the following types of data were needed when making decisions related to designing and conducting vocational education for EMR students.

Level at which the student reads: Since vocational instruction uses written instructional materials and equipment and service manuals, vocational teachers need to know the students' reading ability. A measure of the students' ability to read words and sentences and their capacity to comprehend the content is needed.

Mathematical Competencies: A measure of the mathematical operations, measurement skills and form perception which the students can perform is needed.

Vocational Aptitudes: A measure of the students potential in skill areas related to a variety of occupations is needed.

Vocational Interests: When counseling students concerning various occupations, it is necessary to have information on their interests.

Diagnostic Information Generated in the Classroom: Information collected from the Advisory Committee, participating teachers, and visitations to the participating schools indicated that there was a need to obtain diagnostic information through the teaching/learning activities structured in the classroom and lab.

Since the EMR's ability to intake and output symbolic information and responses is limited, it is important that the procedures utilized to collect data provide test tasks which directly measure the competency involved. Because of these input and response limitations, the work evaluation process which employs hands-on, concrete experiences appeared to provide more accurate and definitive information on the students' aptitudes and interests. Since few good diagnostic tests were available which allowed EMR students to perform at their maximum capacity and also provided diagnostic information on the problems encountered, diagnostic evaluation carried out by the classroom teacher

during the learning process became more important. This was especially true in vocational education where few appropriate performance tests were available.

Vocational Teacher Competencies Needed to Interpret Diagnostic Test Data

As noted in Chapter II, the research design for this project was based on an empirical approach through which vocational teachers who had EMR students in their classes would identify the competencies they needed in order to work effectively with these students. In addition, project staff members visited the classrooms and laboratories within which the participating vocational teachers taught. These visits plus interaction with the participating teams during the workshops provided the information for identifying the competencies vocational teachers needed in order to interpret and utilize diagnostic test data.

Near the end of the first workshop, the participants were asked to review a tentative list of competencies and tasks which vocational teachers had to have in order to effectively teach EMR's. The original list was defined through a review of literature and research related to vocational education for mentally handicapped students. The participants reviewed this list and suggested some additional tasks and competencies. These were added to the instrument. After the instrument had been completed and reproduced, each participant responded to the competency list. (See Table III-2 for a complete listing of these tasks.) Post administration of the instrument was completed in December, 1975 to assess the participants' perceptions at the end of the project.

The participants were asked to respond twice to each task and competency. The first response was an indication of the competency a teacher needed in order to work effectively with EMR's. Responses ranged from "(1) no proficiency" to "(5) proficient - must be able to do without assistance or reference". Participating team members were asked to indicate their present level of ability in regard to each of the tasks and competencies listed. The same scale was used for indicating their ability as was employed for recording the ability needed.

A set of decision rules was identified to be utilized in analyzing the data from the pre-assessment and identifying those tasks and competency areas in which the participating vocational teachers and team members needed to develop additional capabilities. Areas of critical need, in other words, those that required the most development, were the competencies with a median value of 4.5 or more for ability needed and a reported present ability which was at least 2 points below the ability needed. For example, the vocational teachers in the project indicated that the median ability level needed to utilize work evaluation data (item 33) was 4.8. They reported that their present ability had a median level of 2.3. Therefore, this was an area of critical need, since the median ability needed was greater than 4.5 and the difference between the present ability level and the ability needed was more than 2. A complete summary of the ability needed and present ability is recorded in Table III-2. Post-assessment data on the competencies needed are also included in Table III-2.

Two competencies fell in the critical need area. As noted above, the interpretation and utilization of work evaluation data (median ability needed - 4.8) was one of the critical need areas. The other area was concerned with the application of behavior modification techniques in the classroom (item 2). At the conclusion of the project vocational teachers indicated that a slightly lower level of proficiency was needed in these two areas. More emphasis was placed on using assistance in those two areas. Their responses still revealed these as areas of need.

Areas of need were those in which present ability was one to two points less than the ability needed.

Several competencies related to the collection, interpretation and use of evaluation data fell into the need area on the reassessment. Participants reported a need to develop competency in requesting data (Item 3, median ability needed = 4.3), conducting student interviews (Item 43, median ability needed = 4.8), interpret test results (Item 46) and developing behavior observation skills (Item 47). On the post-assessment the vocational teachers suggested that a lower level of ability was needed on requesting data (Item 3) and conducting student interviews (Item 43). As a result, these two items no longer fell in the need category. In the post-assessment, vocational teachers placed more emphasis on doing these with the assistance of other staff members. Their experiences in the project appear to have had an impact on their perceptions of team work in the school system. On a number of the competencies, the vocational teachers modified their responses from being able to "do without assistance" to doing it with the assistance of someone else. Thus, the change in emphasis probably reflects more of an interest and motivation to work with other staff members in the school and does not reflect a feeling that the task was not important. On the remaining tasks cited above, the post-assessment emphasis was approximately the same as that observed on the pre-assessment. The slight changes observed did not reduce the extent of need reported in the pre-assessment.

Vocational teachers also indicated a need to develop competencies in the area of the evaluation of EMR vocational training programs (Item 18) and the ability to evaluate a competency exercise (Item 52). In addition, vocational teachers indicated a need to develop competency in analyzing interpersonal interactions in the classroom (Item 31). Responses to the post-assessment were very similar to those on the pre-assessment with the exception of Item 52. On Item 52 there was a marked increase on the post-assessment in the level of proficiency reported as needed. In other words, at the end of the project vocational teachers felt that there was more need for the ability to evaluate a competency exercise without assistance than they reported in the pre-assessment. The other competencies noted in this paragraph also remained in the need category.

To Item 13, which asks the degree to which the participating teachers needed competency in interpreting diagnostic test data, the median response was 3.3 on the pre-assessment and 3.5 on the post-assessment. In other words, the

participants thought that they needed to be able to do this with assistance. There was a slight trend for the vocational teachers to feel that an increased level of competency was required in this area. More of the vocational teachers thought that they should be able to do this without assistance (Category 4) than in the pre-assessment. In general, though, the participants thought they needed to be able to do this with assistance. This response runs parallel to the reactions given to the ability needed to develop A-V material (Item 42) and prepare video-tape demonstrations (Item 41) which both had medians of 3.8 on the ability needed scale in the pre-assessment. On the post-assessment the ability needed to prepare video-tape demonstrations increased to 4.0. To Item 39, which asked the vocational teachers to indicate the competency needed in utilizing the services of an A-V specialist, the median response was 4.3 on the pre-assessment and the post-assessment. In other words, the participating vocational teachers saw a need to be able to work effectively with specialists in the area. The vocational teachers appeared to have a similar perspective in regard to the interpretation of information related to the learning styles and capabilities of EMR students. As noted previously, several of the items concerned with the acquisition and use of evaluation information received ratings in the need category. Thus, it appeared that the participating vocational teachers felt that they should have more competency in using diagnostic test data in developing instruction. However, they felt that interpretation and application could be done with the assistance of a specialist.

Reactions from the participants and observations by the project staff indicated that the participating teachers had a general comprehension of the characteristics and needs of EMR students. However, as noted in Table III-2, many felt that they lacked the competency to make adequate responses to these needs. These special competencies will be discussed in more detail for objective number 3.

After participating in the project, vocational teachers were more interested in obtaining assistance in acquiring and using standardize test and work evaluation information than doing this on their own. At the end of the project they indicated a need for higher levels of competency in collecting, interpreting and using classroom data in making their teacher decisions.

Table III-2

Competencies Needed by Vocational Teachers in Order to Teach EMR Students As Perceived by the Vocational Teachers in the Vocational Teacher-EMR Project

KEY:

No Proficiency. 1
Aware of the competency 2
Do With Assistance. 3
Do Without Assistance in most instances 4
Proficient (do without assistance or reference) 5

Competency/Task/Attitude	Pre-Assessment Ability Needed Q2	Pre-Assessment Present Ability Q2	Post-Assessment Ability Needed Q2
1. Conduct a task analysis of a job.	4.250	2.875	4.250
2. Utilize behavior modification techniques in developing desired behavior.	4.625	2.333	3.833
3. Utilize the internal and external referral processes to request information pertinent to classroom activities.	4.333	3.333	4.00
4. Ease the transition from school to work through instruction of job getting and job keeping skills.	4.250	3.125	4.25
5. Inter-relate personality, social, and interpersonal ethics into classroom learning activities.	4.917	4.000	4.5
6. Utilize a competency based evaluation system rather than the A-B-C-D-F grading system.	4.625	4.000	4.750
7. Simplify instructional units into small learning steps with constant use of repetition and over-learning.	4.625	3.667	4.167

Table III-2 (Continued)

Competency/Task/Attitude	Pre-Assessment Ability Needed Q2	Pre-Assessment Present Ability Q2	post-Assessment Ability Needed Q2
8. Construct instructional units in daily living skills (telling time, counting change, etc.)	4.800	3.750	3.500
Communicate effectively using:			
9. Simple verbal expressions, explanations, and examples.	4.800	4.125	4.750
10. Simple physical demonstrations.	4.625	4.333	4.9
11. As many of the five senses as possible.	4.917	3.875	4.25
12. Organize Coop and on-the-job training programs.	4.800	2.875	3.333
13. Interpret diagnostic test data knowing its uses, limitations, and implications for classroom activities.	3.250	2.625	3.500
14. Translate medical and psychological reports into meaningful individualized vocational programs.	3.750	2.125	3.250
15. Understand the I.Q's relationship to predicting vocational success, potential motor abilities, and work attitudes.	3.250	2.333	3.167
16. Understand the job requirements (Motor and social skills) in those occupations applicable to the EMR.	4.625	3.000	4.167
17. Utilize a public relations program.	4.800	3.333	4.167
18. Evaluate the EMR vocational training program effectively.	4.800	2.750	4.500
19. Provide a slower concept/skill learning pace.	4.800	3.200	4.500

Table III-2 (Continued)

Competency/Task/Attitude	Pre-Assessment Ability Needed Q2	Pre-Assessment Present Ability Q2	Post-Assessment Ability Needed Q2
20. Minimize lecturing and maximize learning by doing.	4.800	4.125	4.750
21. Maximize stimulation by fluctuating learning activities.	4.917	3.667	4.750
22. Build the EMR's self-concept through acceptance and success in classroom activities.	4.800	3.875	4.900
23. Focus learning activities on what the EMR can do.	4.917	3.333	4.900
24. Promote an environment of high personal hygiene expectations.	4.625	3.750	3.833
25. Provide a "Work Bound" training atmosphere to set the stage for the ultimate transfer of the EMR to employment and his necessary adjustments toward independence.	4.625	2.667	4.670
26. Break complex motor skill tasks into simple steps.	4.917	3.333	4.500
27. Construct highly stimulating learning situations where judgment and discrimination are minimized and imitation is maximized.	4.625	2.875	4.500
28. Develop instructional units revolving around job-specific concepts and skills rather than general concepts and skills. (Mini-courses, Packages).	4.625	3.333	4.500
29. Accept personal and situational criticism from EMR's without antagonism.	4.625	4.333	4.500
30. Look objectively at personal prejudices and understand their influences on behavior.	4.500	4.000	4.500

Table III-2 (Continued)

Competency/Task/Attitude	Pre-Assessment Ability Needed Q2	Pre-Assessment Present Ability Q2	Post-Assessment Ability Needed Q2
31. Analyze interpersonal and personal-environmental situations without request from or aid of the EMR.	4.250	2.750	4.000
32. Deal effectively with highly emotional situations such as student-student, student-school, student-home, or employer.	4.333	3.625	4.250
33. Utilize work sample evaluation reports effectively in program development.	4.800	2.333	4.167
34. Develop work sample based evaluation system.	4.250	2.000	3.833
35. Conduct home visits.	4.625	3.750	3.900
36. Develop more positive attitude toward working with EMR's.	4.800	4.625	4.500
37. Adjust standards for performance expected of EMR's.	4.625	3.333	4.500
38. Develop work evaluation unit.	4.000	1.800	3.500
39. Effectively utilize the services of an A-V specialist.	4.250	2.750	4.250
40. Develop sheltered employment experiences.	4.000	1.375	2.500
41. Prepare video-tape demonstrations.	3.750	3.000	4.000
42. Develop A-V materials.	3.750	3.375	3.833
43. Conduct student interviews.	4.800	3.625	4.167
44. Evaluate effectiveness of teaching techniques.	4.125	3.625	4.500
45. Acceptance of individual differences of the EMR.	4.625	4.200	4.750

Table III-2 (Continued)

Competency/Task/Attitude	Pre-Assessment Ability Needed Q2	Pre-Assessment Present Ability Q2	Post-Assessment Ability Needed Q2
46. Interpret test results.	4.250	2.875	4.000
47. Develop behavior observation skills.	4.625	3.000	4.167
48. Develop an awareness of how to recognize students with problems in the regular class. (EMR. learning disability, etc.)	4.625	3.000	4.500
49. Learn how to change written material into other modes of instruction.	4.625	2.875	4.167
50. Develop positive attitudes towards working on a team.	4.800	4.000	4.750
51. Be aware of social and work problems encountered by EMR's.	4.625	3.200	4.250
52. Evaluate a competency exercise.	4.125	2.800	4.500
53. Determine what is the function of the administrator in developing the EMR program.	3.333	2.625	4.000
54. Give in-service training to other teachers working with EMR's.	3.750	2.667	3.500
55. Develop positive working relationships with governmental agencies involved with the families of the EMR.	3.750	2.625	4.000
56. Develop accurate progress charts of individual student progress in all courses, to include problems and specific concerns on an on-going basis.	4.000	3.000	4.000
57. Use staff from area university to assist in material adaptation and program planning.	4.000	3.125	4.500
58. Know local labor market trends and placement opportunities and problems.	4.625	3.000	4.500

Table III-2 (Continued)

Competency/Task/Attitude	Pre-Assessment Ability Needed Q2	Pre-Assessment Present Ability Q2	Post-Assessment Ability Needed Q2
59. Know vocational vocabulary.	4.333	3.750	4.750
60. Know safety procedures in relation to equipment.	4.500	4.625	4.750
61. Know how to write a proposal.	3.667	1.875	3.250
62. Develop alternatives to reading instruction.	4.625	3.250	4.000
63. Develop post-secondary programs.	2.333	1.667	3.833
64. Willingness to depart from traditional teaching strategies.	4.625	3.750	4.750
65. Plan in-service programs for regular class teachers.	3.875	3.000	3.500
66. Conduct follow-up contacts with EMR's after graduation.	4.000	2.333	3.500
67. Develop alternative post-secondary vocational training opportunities for EMR's.	3.750	1.875	3.500
68. Conduct flexible learning experiences (be able to quickly adjust to student needs).	4.800	3.625	4.500
69. Respond to individual student needs.	4.800	3.250	4.500
70. Relate classroom instruction to life.	4.800	4.000	4.750
71. Develop special education vocabulary.	4.000	2.750	4.500
72. Develop cooperation with other departments.	4.625	3.000	4.750
73. Develop instructional units which will assist students in developing decision-making abilities.	4.000	2.800	4.000
74. Develop leisure time activities.	4.125	2.667	3.500

Special Competencies Needed by Vocational Teachers in Order to Construct Valid and Effective Learning Experiences and Vocational Programs for EMR Students

Job Identification. Based on the project staff's experience in the workshops and contact with schools outside of the project, it became apparent that one of the competencies needed was that of identifying jobs which were appropriate for individual EMR students. One of the first questions received when discussing vocational education for mentally handicapped students was "What kind of jobs can they obtain?" Most vocational educators have experience in preparing students for jobs which require average or above average capabilities. Their realm of experience does not include identification and training for simpler jobs.

It has also been the project director's experience while working with vocational educators at secondary and post-secondary levels throughout the upper Midwest during the past ten years, that most vocational teachers do not have experience in redefining jobs. Vocational teacher education courses stress the identification of the skills required to perform existing jobs. Little emphasis has been given to identifying the competencies and potential of the students and then redefining a job to meet that student's needs and capabilities.

As reported in Table III-2, the vocational teachers in the project reported a need to develop more competency in identifying jobs appropriate for EMR's (item 16). Therefore, a session in workshop III and reference materials were made available to the participants. Also, a computer program was developed for storing and retrieving information on these jobs. (This program is described in the last section of this chapter.)

Task Analysis and Detailing. One of the criterion measures used to select vocational teachers is their occupational experience and competency. Thus, it is assumed that vocational teachers know what tasks are included in their occupation. Also, it is assumed that they will be able to analyze this occupation and break it into component elements which can be readily taught. It has been the experience of the project director in working with teachers concerned with vocational and technical programs in general that they have problems in identifying specific job content for instruction. The participants in the Vocational Teacher Competency-EMR Project indicated that this was even more important to their work with EMR students. For example, vocational teachers reported a need to develop additional competency in conducting task analyses (item 1, median ability needed = 4.3). Closely allied to this need was the reported need to be able to analyze complex motor skills into specific steps (item 26, median ability needed = 4.9). Knowledge of the local labor market trends and placement opportunities for EMR students, item 58, was also reported as a task in which the teachers needed additional competency. As a result of these experiences and the feedback from the participating teachers, workshop sessions on task analysis and task detailing were presented during workshops I and II. An outline of the task analysis process and a task based curriculum development system is

given in Figure III-6. (A complete set of the materials used for the task analysis and task detailing presentations during workshop II is given in Appendix G.)

The task based curriculum development process stresses the identification of a job or cluster of jobs as a starting point in the curriculum development process. The next step is to sub-divide the job or jobs into more homogeneous sets of activities called functions. Some job analysis processes term these sets of activities "duties". After the functions have been identified the next step is to analyze the functions into smaller job elements called "tasks". A task is the smallest convenient unit of job activity which has a discrete purpose.

Participating team members were encouraged to utilize the task analyses recorded in ERIC and those produced by other authors as a starting point in their task analysis process. If an appropriate task analysis was not available, the vocational teacher could go to employers and employees in the occupation and ask them to identify the job functions and tasks. Or, they might observe several persons perform the job.

Validation of tasks involves collecting data on the activities performed on the job. Information for the validation could be collected through a task survey or through actual observation of persons performing the job or jobs. If these are not possible, the job could be simulated in the laboratory.

In order to obtain the specific information necessary to develop behavioral objectives it is necessary to break each task down into more specific steps and processes. This is especially critical when vocational instruction is being developed for EMR students. This step in the analysis process is called "task detailing". This is a critical step and requires considerable insight on the part of the instructor and the ability to utilize a variety of resources to define the specific steps, processes, attitudes, knowledges, and manipulative skills which need to be performed in completing a task.

Once the task and task detailing data are available, it is possible to write the behavioral objective for the vocational program. Each behavioral objective would include a statement of the conditions under which the person would perform the task, a definition of the type of performance expected and specification of the criterion level of performance.

Writing behavioral objectives when developing instructional modules moves into the realm of developing instructional strategies and learning materials. These will be covered in the next competency identified.

Reactions to the presentations on task analysis and task detailing were very positive on the part of the participants. In addition, their applications indicated a grasp of the procedure. One indicator of the interest in this process was the fact that two of the participating school systems invited

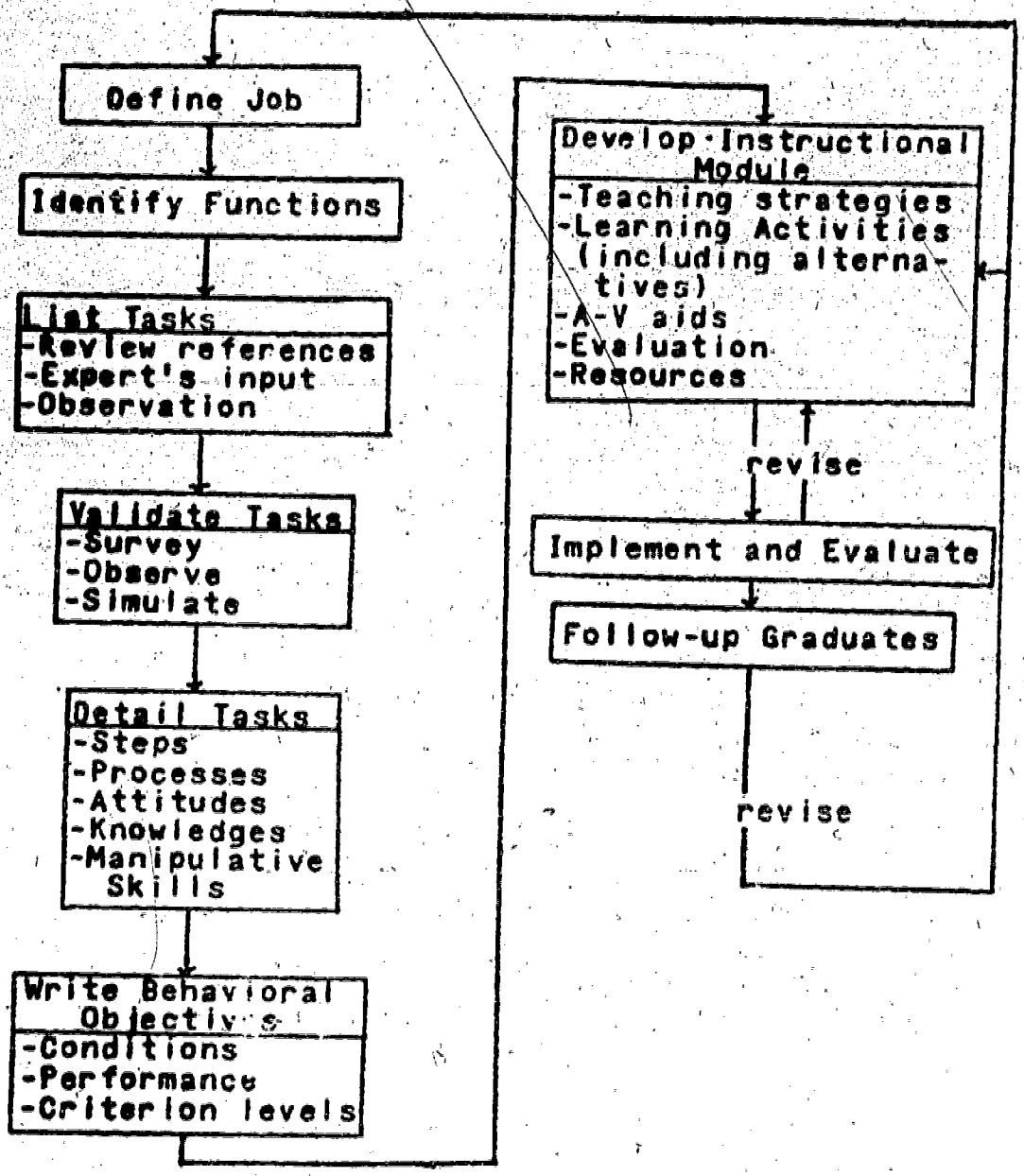


FIGURE III-6: Task Based Curriculum Development System

project staff members to make presentations on task analysis to all of the teachers in their schools. Applications of the task analysis process during workshops II and III indicated that participants were able to gain a better idea of the specific competencies required to perform a job and were able to identify and design more specific learning experiences for their students. Responses on the post-assessment confirmed these observations. Conducting a task analysis retained a high competency rating and, while the rating for task detailing dropped slightly, majority of the responses were in the high level of proficiency category.

Developing Concrete Learning Experiences. One of the trademarks of vocational education is the emphasis on practical laboratory experiences and on-the-job training. The typical vocational program, however, involves a considerable amount of verbal and symbolic material. These are often presented through the lecture method. A common term used to denote this information is "related technical information". In the post-secondary vocational-technical schools in Wisconsin, a general education component is also included in vocational programs.

There frequently is a tendency to add a dash of mathematics and a sample of science to vocational programs in order to give the students involved a "better idea" of what is happening in their jobs. This may be worthwhile for the student who has average or above average ability to process symbolic materials. However, for the EMR student, it is often a hurdle which cannot be negotiated. The task analysis process, if followed exactly, tends to eliminate much of the extraneous verbal information put into vocational programs.

Most jobs have valid cognitive content which must be mastered by the student in order to adequately perform the job. Operator's manuals must be used in making repairs and orders must be interpreted in order to initiate the proper activities. The challenge to the vocational instructor is to develop concrete learning experiences which will impart these cognitive knowledges to the EMR learner.

Vocational teachers in the project indicated a need to develop more competency in designing instructional units based on job specific tasks (item 28), construct stimulating learning experiences (item 27), and design more flexible learning experiences (item 68). The need to develop alternatives to learning activities based upon reading was also noted (item 62, median ability =4.6). The vocational teachers participating in the project reported the need to identify additional competencies related to teaching strategies. Participants reported a need to develop additional competency in varying learning activities (item 20) and utilizing as many of the learner's five senses as possible (item 11).

During the first workshop, the participants indicated a need to develop more competency in interpreting reading scores and identifying the reading level of written materials. One of the participating team members, Carol Kay, developed a paper on readability and techniques for determining the readability of instructional materials. This paper was utilized in a

readability presentation during the second workshop. (See Appendix H for a copy of the paper.)

Participants also indicated that there was need to develop additional competency in the utilization of grade level reading ability scores. Most of the participants were not familiar with the usual developmental sequence in acquiring reading skills. Nor were they very familiar with the types of skills represented by a grade level reading score. In order to assist the participants in working with reading scores, the project's research associate developed a guide which defines the types of reading skills commonly developed at each grade level and lists the sequence in which reading skills are normally developed. This guide is included in Appendix K. Reactions to this guide were positive.

Participants in the project also indicated a need for further information on the types of skills represented by grade level math scores. Thus, a guide similar to the one developed in reading was constructed for the math area. This guide is reproduced in Appendix L. At the present time a graduate student is working on a computer program which would assist vocational teachers in analyzing the math skills required in given tasks and projects.

In workshops II and III resources persons discussed alternative modes for presenting instruction to students. Emphasis was given to teaching methods, learning activities, and evaluation which were not dependent on symbolic and theoretical materials. (A copy of the agenda for workshop III is included in Appendix J.) For example, Dr. James Bensen from UW-Stout presented a variety of techniques for individualizing instruction which included non-verbal learning packages and hands-on laboratory experiences. Dr. Bensen also discussed various formats for sequencing these learning activities to provide alternative routes to attaining the same objective.

Another approach taken was to place more reliance upon multi-media instruction. This was one of the reasons for including a media specialist on each team. This addition appeared to have been very productive as the media specialist was able to help the vocational teacher in developing mediated instructional materials. As noted in the previous section, vocational teachers indicated the need to be able to work effectively with media specialists and to use A-V learning materials on the pre- and post-assessment.

In the second workshop, a presentation was made on the factors in readability. During this presentation, the participating team members observed ways to revise reading materials to make them more readable. Later contacts with the participating teachers indicated that they applied many of these techniques in developing their classroom materials. In addition, two of the vocational teachers expressed interest in further information on techniques for rewriting materials for EMR students.

After participating in three workshops and using the techniques and approaches presented, the vocational teachers continued to feel that these competencies were important. Developing job specific learning activities, more flexible learning experiences, and minimize lecturing while emphasizing learning by

doing retained their high level of competency need ratings from pre- to post-assessments. The medians for these competencies were in the do with some assistance and proficient ranges. Competencies associated with modifying reading materials (items 49 and 62) received lower proficiency ratings on the post-assessment. Participating vocational teachers gave more emphasis to doing these with assistance. These changes appeared to result from their growing awareness of the contribution reading specialists could make to their work.

The approaches taken with the participating teachers have been productive. There still remains, however, need for more research work on the cognitive knowledges learned through hands-on learning activities in the vocational laboratory.

Emphasis on Students. In the typical vocational classroom, the emphasis is on content. Vocational teachers have as a prime concern imparting those skills and knowledges required to perform a job or cluster of jobs. This concern is evidenced by comments such as "Students must acquire enough skills to perform on the job", "How will they learn enough skills to be able to perform all the tasks", and "I'm really short of time to teach the skills required on the job". These comments are not meant to convey the idea that vocational teachers are not concerned about students. Vocational teachers are concerned that students acquire appropriate skills in as efficient a manner as possible. However, their concern for students enters their decision making after the task analysis and course outline have been established.

When planning vocational instruction for EMR students, knowledge and concern for student needs and characteristics must be involved in the curriculum development process from the first stage on. Figure III-7 depicts this early involvement. The starting point of vocational curriculum development is an analysis of jobs. This analysis must take into account students' capabilities and potentials as well as the usual task identification. In addition, it may be necessary for someone connected with the vocational program to work with an employer to restructure a job for a specific EMR student. The task analysis must also be done in sufficient detail to provide the information necessary for developing effective vocational instructional materials and teaching strategies for EMR students. Therefore, the vocational educator must be more concerned with student characteristics than under typical conditions.

As noted previously, participating vocational educators identified a need for more competency in conducting task analyses. They also reported that they should develop additional competency to respond to individual student needs (item 69, median ability = 4.8). On the post-assessment the median for this item was 4.5 which was still in the proficiency category.

Participants indicated an interest in having adequate information available on students' interests, capabilities, and potentials so that they could design individualized programs for EMR students. In the case study activities presented in the first workshop, one contained very little specific information on the students' vocational aptitudes and interests. The most frequent question raised by the participants when working with

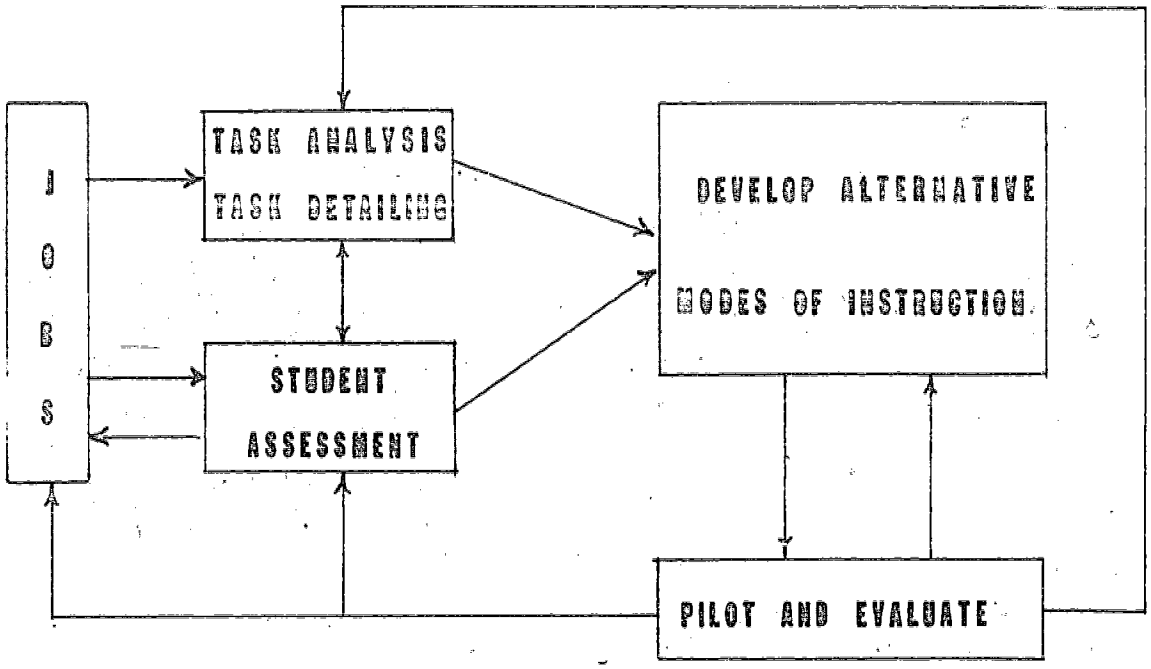


Figure III-7: Student and Task Analysis Vocational Curriculum Development System

this case study related to the need for more information on the students' aptitudes and interests. Members of the participating teams felt that this information was important when helping the student select a vocational program and when designing learning experiences for the student. Since EMR students often do not process verbal material readily, it is important that the aptitude and interest information be collected through a process which assesses these traits rather than the student's ability to read. One such technique that looks promising is work evaluation. Most of the participating schools made arrangements to have 4 to 9 of their EMR students processed through work evaluation. In most instances, this involved the use of the SINGER work evaluation unit. The data collected from this process were utilized by the teachers during the fall of the 1975-76 school year in selecting vocational education programs and designing learning activities for students.

After experience with the work evaluation data the participating vocational teachers indicated that a lower level of competency was sufficient in this area. The median for ability needed dropped from 4.80 on the pre-assessment to 4.167 on the post-assessment. A part of this can be attributed to the teacher's growing interest in working with specialists. However, a significant part of this change can also be attributed to some weaknesses in the work evaluation data. Reports from the participating schools revealed that the work evaluation data were not always valid and the reports were difficult to use in modifying curriculum and instruction. As a result, teachers placed more emphasis on using a competency based evaluation system (item 6) and evaluating competency exercises (item 52).

After the task analysis and student assessment data have been accumulated alternative modes of instruction must be developed. These alternatives will provide more opportunities for students with learning handicaps to achieve given vocational objectives. Teachers must also develop a habit of trying out and evaluating each mode of instruction to determine the effectiveness with students having given characteristics. In addition, the evaluation must take into account the degree to which it developed valid job competencies. A follow-up study of graduates will validate the original task analysis.

In order to place appropriate emphasis on students' needs, teachers must have a positive self-concept, feel secure in their jobs and be concerned with others. Vocational teachers in this project indicated the high levels of proficiency were needed in acdepting criticism from EMR's (item 29, median = 4.5), understanding how one's prejudices influence behavior (item 30, median = 4.5), and developing a positive attitude toward working with EMR's (item 36, median = 4.5).

Since attitudes develop slowly, implementation of successful vocational programs for EMRs will be dependent upon an appropriatel, designed in-service program which is reinforced with high levels of support services from guidance counselors, special educators and media specialists. Also, administrative support and encouragement is essential.

A student orientation to instruction is the keystone in developing an effective vocational program for EMR students.

Classroom Management Techniques. Teaching a vocational class which has EMR students mainstreamed or a total class of EMR students presents unique problems to the vocational educator. The pace of instruction must be adjusted to match the acquisition capabilities of the learners (item 19). Information and skills must be presented in smaller and more detailed steps (items 7 and 26) than what the educator has been used to doing. Also, provision must be made for more repetition, however, this must be done in a way that maintains the interest of the students (item 21).

When EMR students are mainstreamed with regular vocational students, there is extreme pressure on the teacher's classroom management strategies to provide for individually paced instructional activities. Typically, vocational teachers have been accustomed to moving the class as a unit towards stated instructional goals. On competency 69 for example, vocational teachers reported a need to develop more competency in responding to individual student needs. Introduction of students who learn through unique styles and move at a slower pace provides a new set of problems for vocational teachers (item 23). Moreover, the individualized instruction provided for the EMR learner cannot be based upon an extensive amount of reading (item 62). This tends to negate much of the individualized learning materials developed by vocational teachers.

Since EMR students have usually been accustomed to failure in classroom situations, it is important that their activities be reinforced. Also, application of behavior modification techniques or some other type of management strategy to modify behavior is often necessary. These strategies require high levels of reinforcement with appropriate reinforcers. (item 22). In order to do this, the vocational teacher needs to have an understanding of the developmental sequences involved in acquiring each skill and be able to apply competency based evaluation techniques. A knowledge of various motivators is also necessary.

In order to be more effective in the classroom or laboratory which enrolls EMR students, vocational teachers must conceive of themselves as resource managers. At the present time, many operate under the conceptualization of a teacher as being the dispenser of skills and knowledge. The resource mananger seeks a variety of ways to provide experiences which will develop skills and knowledges required on the job. For example, the resource manager will look to others to aid in the instructional process. One effective source of additional assistance in the classroom is students who have mastered a particular skill. A number of research studies have shown that peer teaching can be effective both in aiding other students in the class and in further developing the competencies of the peer teacher. Appendix I contains a paper developed by the graduate research assistant on the project staff. This paper describes the process for identifying peer teachers and procedures for effectively utilizing them in the classroom.

In the process of working with the participating teams, several competencies that special educators and media specialists needed to develop became apparent. Table III-3 presents the post-assessment judgments of the special educators and media specialists in the project.

Areas in which special educators had significant need for professional development included task analysis (item 1), competency based evaluation (item 6), organizing on the job training programs (item 12), understanding job requirements (item 16), and evaluating vocational education programs for EMRs (item 18). They also reported significant needs in the areas of providing a word bound training atmosphere (items 25 and 40), breaking complex motor skills into small steps (item 26), developing work sample based evaluation systems (items 34 and 52). Other competency areas in need of significant development were developing a work evaluation unit (unit 38), evaluating teaching and learning (items 44 and 48), knowing the local labor market (item 58), and knowledge of vocational terms (item 59).

In general, special educators felt that there was a significant need to improve those skills related to job identification, job analysis, vocational course planning and occupational instruction. Several of the special educators on the team expressed an interest in learning more about the principles and philosophy of general education.

Media specialists also indentified several areas in which they needed more competency. Task analysis (item 1), rewriting materials to simplify reading (item 49), and developing positive working relationships with external agencies involved with EMRs (item 55), were identified as the most critical areas. Other areas of important need were simplifying instructional units (item 7), using as many of the senses to communication as possible (item 11), focusing learning activities on what the EMR can do (item 23), use university staff to assist in adapting materials (item 57), knowledge of local labor market (item 58), willingness to depart from traditional teaching strategies (item 64) and developing instruction which would build decision-making skills.

Basically there were three basic clusters of competencies the media specialists though were most importand - 1) competencies needed to analyze jobs and tasks, 2) utilization of local resources to develop media and 3) skills needed to effectively communicate content to EMRs.

Summary. The participants had a general comprehension of the meaning of test scores. They were able to interpret standard scores such as IQ and grade level scores to identify whether students were average, below average, or significantly below average in their skills as measured by the instrument. However, their comprehension of the specific skills measured by various instruments was limited. This was expected since the educational program in which the participants had been involved, with the exception of counselors and work evaluators, did not stress the interpretation of standardized test data. Also, the participation of counselors and work evaluators on the teams was planned in order to provide assistance with the detailed interpretation of test scores. A significant need identified was competency in responding appropriately

Table III-3

Post Assessment Report of Competencies Needed by Special Educators, Media Specialists and the Total Group of Participants in Order to Teach EMR Students

KEY:

No Proficiency 1
Aware of the competency. 2
Do With Assistance 3
Do Without Assistance in most instances. 4
Proficient (do without assistance or references) 5

mpetency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
. Conduct a task analysis of a job.	4.000	2.000	4.250	2.000	4.125	2.750
. Utilize behavior modification techniques in developing desired behavior.	3.500	3.000	4.500	3.750	4.000	3.500
. Utilize the internal and external referal processes to request information pertinent to classroom activities.	3.500	2.500	4.500	4.100	4.214	3.333
. Ease the transition from school to work through instruction of job getting and job keeping skills.	3.000	2.500	4.833	3.900	4.500	3.786
. Interrelate personality, social, and interpersonal ethics into classroom learning activities.	4.000	3.000	4.833	4.250	4.550	3.938

ble III-3

mpetency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
. Utilize a competency based evaluation system rather than the A-B-C-D-F grading system.	4.000	3.000	3.833	2.833	3.955	2.900
. Simplify instructional units into small learning steps with constant use of repetition and over-learning.	4.125	3.000	4.500	3.500	4.273	3.400
. Construct instructional units in daily living skills (telling time, counting change, etc.)	3.750	2.750	4.833	4.000	4.286	3.650
mmunicate effectively using:						
. Simple verbal expressions, explanations, and examples.	4.250	3.667	4.929	4.250	4.692	4.050
. Simple physical demonstrations.	4.333	4.250	4.500	3.750	4.545	4.111
. As many of the 5 senses as possible.	4.333	3.000	4.300	3.500	4.308	3.444
. Organize Coop and on-the-job training programs.	3.000	2.000	4.833	3.000	4.375	2.600
. Interpret diagnostic test data knowing its uses, limitations, and implications for classroom activities.	3.000	2.167	4.500	3.500	3.833	2.875
. Translate medical and psychological reports into meaningful individualized vocational programs.	2.833	2.000	4.000	3.250	3.500	2.500

ble III-3

petency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
Understand the I.Q.'s relationship to predicting vocational success, potential motor abilities, and work attitudes.	2.833	2.500	4.500	3.250	3.700	2.875
Understand the job requirements (motor and social skills) in those occupations applicable to the EMR.	3.000	2.833	4.833	2.500	4.500	3.000
Utilize a public relations program.	4.000	3.000	4.000	3.500	4.167	3.300
Evaluate the EMR vocational training program effectively.	3.167	2.500	4.700	3.167	4.591	2.786
Provide a slower concept/skill learning pace.	4.000	4.000	4.833	3.833	4.591	3.667
Minimize lecturing and maximize learning by doing.	4.500	4.167	4.929	4.000	4.667	3.962
Maximize stimulation by fluctuating learning activities.	4.500	4.167	4.929	3.900	4.667	3.962
Build the EMR's self-concept through acceptance and success in classroom activities.	3.833	3.500	5.000	4.300	4.667	4.167
Focus learning activities on what the EMR can do.	3.875	2.750	4.929	3.929	4.625	3.750
Promote an environment of high personal hygiene expectations.	3.000	3.000	4.500	3.900	4.167	3.700

ble III-3

mpetency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
. Provide a "Work Bound" training atmosphere to set the stage for the ultimate transfer of the EMR to employment and his necessary adjustments toward independence.	3.500	2.500	4.929	3.250	4.500	3.000
. Break complex motor skill tasks into simple steps.	3.125	3.250	4.833	2.500	4.545	3.111
. Construct highly stimulating learning situations where judgment and discrimination are minimized and imitation is maximized.	3.333	3.000	4.333	2.833	4.036	3.063
. Develop instructional units revolving around job-specific concepts and skills rather than general concepts and skills. (Mini-courses, Packages)	3.333	2.250	4.500	2.750	4.545	2.444
. Accept personal and situational criticism from EMR's without antagonism.	4.000	3.500	4.500	3.833	4.269	3.786
. Look objectively at personal prejudices and understand their influences on behavior.	4.000	3.167	4.300	3.750	4.250	3.750
. Analyze interpersonal and personal-environment situations without request from or aid of the EMR.	3.500	3.000	4.333	4.000	4.000	3.250

Table III-3

Competency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
32. Deal effectively with highly emotional situations such as student-student student-school, student-home, or employer.	3.500	2.500	4.700	3.250	4.300	3.214
33. Utilize work sample evaluation reports effectively in program development.	3.000	2.500	4.167	3.100	4.071	2.722
34. Develop work sample based evaluation system.	3.000	2.500	4.500	2.500	3.929	2.500
35. Conduct home visits.	2.000	2.000	4.700	4.250	4.100	3.000
36. Develop more positive attitude toward working with EMR's.	3.500	3.833	4.929	4.500	4.731	4.083
37. Adjust standards for performance expected of EMR's.	3.000	2.833	4.917	4.100	4.200	3.250
38. Develop work evaluation unit.	3.000	3.000	4.625	2.500	3.875	2.786
39. Effectively utilize the services of an A-V specialist.	4.875	4.667	4.500	3.500	4.545	3.625
40. Develop sheltered employment experiences.	2.167	2.000	3.750	2.300	3.600	2.250
41. Prepare video-tape demonstrations.	4.667	4.667	4.500	3.000	4.083	3.083
42. Develop A-V materials.	4.875	4.667	4.500	3.750	4.250	3.583

ble III-3

mpetency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
. Conduct student interviews.	2.500	2.000	4.500	3.500	4.125	3.214
. Evaluate effectiveness of teaching techniques.	3.333	2.000	4.833	3.500	4.545	3.400
. Acceptance of individual differences of the EMR.	4.500	3.500	4.929	4.833	4.786	4.500
. Interpret test results.	3.000	2.500	4.500	3.167	3.833	3.000
. Develop behavior observation skills.	2.833	2.167	4.500	3.700	4.357	3.333
. Develop an awareness of how to recognize students with problems in the regular class. (EMR, learning disability, etc.)	2.833	2.833	4.500	3.167	4.214	3.143
. Learn how to change written material into other modes of instruction.	4.875	3.250	4.833	3.500	4.692	3.350
. Develop positive attitudes toward working on a team.	4.667	4.000	4.929	4.700	4.800	4.200
. Be aware of social and work problems encountered by EMR's.	3.167	2.333	4.929	3.500	4.667	3.417
. How to evaluate a competency exercise.	3.125	2.500	4.167	2.500	4.063	2.278
. Determine what is the function of the administrator in developing the EMR program.	3.000	2.500	4.000	2.500	3.875	2.357

le III-5

petency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
Give in-service training to other teachers working with EMR's.	3.000	2.500	3.900	2.700	3.800	2.722
Develop positive working relationships with governmental agencies involved with the families of the EMR.	3.500	1.833	4.700	3.000	4.333	2.500
Develop accurate progress charts of individual student progress in all courses, to include problems and specific concerns on an on-going basis.	2.667	1.667	4.300	3.100	4.000	2.714
Use staff from area university to assist in material adaptation and program planning.	3.250	2.000	4.000	2.833	3.889	2.688
Know local labor market trends and placement opportunities and problems.	3.167	2.000	4.700	2.500	4.591	2.750
Know vocational vocabulary.	4.000	3.250	4.929	3.000	4.692	3.286
Know safety procedures in relation to equipment.	3.500	3.500	4.700	3.750	4.500	3.900
Know how to write a proposal.	3.500	2.500	4.000	2.000	3.786	2.167
Develop alternatives to reading instruction.	3.750	3.250	4.500	3.000	4.333	2.938

ble III-3

mpetency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
. Develop post-secondary programs.	3.500	2.000	4.500	1.300	4.125	1.900
. Willingness to depart from traditional teaching strategies.	4.875	3.750	4.929	4.000	4.882	4.000
. Plan in-service programs for regular class teachers.	3.500	2.500	3.500	2.000	4.100	2.500
. Conduct follow-up contacts with EMR's after graduation.	2.167	1.833	4.167	2.500	3.750	2.200
. Develop alternative post-secondary vocational training opportunities for EMR's.	2.500	1.833	3.500	2.000	3.700	1.786
. Conduct flexible learning experiences (be able to quickly adjust to student needs).	4.000	3.000	5.000	3.500	4.692	3.250
. Respond to individual student needs.	4.000	3.333	5.000	4.100	4.692	4.063
. Relate classroom instruction to life.	3.167	3.167	5.000	4.167	4.667	4.000
. Develop special education vocabulary.	3.333	2.667	4.929	4.000	4.200	3.286
. Develop cooperation with other departments.	3.500	3.167	4.929	3.500	4.731	3.833

ble III-3

petency/Task/Attitude	Media Specialists N = 5		Special Educators N = 8		Total N = 21	
	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2	Ability Needed Q2	Present Ability Q2
Develop instructional units which will assist students in developing decision-making abilities.	4.000	2.750	4.833	3.167	4.313	3.182
Develop leisure time activities.	3.333	3.000	4.167	3.500	3.857	3.250

to the EMR's behavior patterns and needs. As mentioned above, the teachers had at least a general understanding of the strengths and weaknesses of the EMR's learning styles. However, they felt a need to develop more sophisticated techniques to utilize in responding to these needs. Skills in identifying jobs, conducting task analyses, developing concrete learning experiences, and applying effective classroom management techniques were needed. The energy to develop these skills and make the necessary modifications in instructional content and approach must come from a strong feeling of concern and responsibility for these students.

Determine the Sufficiency of a Two-Week Workshop

The purpose of the activities related to this objective was to determine whether the competencies identified in objectives 2 and 3 could be developed through a two-week workshop. With enrollment stabilizing at the senior high school level in most states and decreasing in junior high and elementary schools, the infusion of new staff members in school systems will be greatly reduced. Thus, the in-service of teachers presently on staff would appear to be one of the basic avenues for developing competencies to provide vocational programs for EMR students. This is not meant, however, to mean that the same competencies should not be developed in undergraduate programs preparing vocational teachers. This will also be an important application.

Project Workshops. Three workshops were conducted by the project. The purpose of the first workshop held during September, 1974, was to orient participants to the project, determine their understanding of the EMR's learning characteristics, and identify their ability to interpret and utilize information related to EMR students. A copy of the agenda for the first workshop is included in Appendix F. During this workshop, the participants worked with a number of case studies and prepared vocational program plans for the students described in the case studies. Based upon these experiences, the participants identified competencies they needed to develop and made suggestions for the agenda for the second workshop.

After the first workshop had been completed, the participating teams identified curriculum and instructional needs for specific students in their school systems. Project staff members visited each of the schools to observe the programs offered by the participating schools. In addition, the agenda for the second workshop was discussed with each of the participating team members.

A draft copy of the agenda for the second workshop was developed based on the participants' input and the review of research conducted by the project staff. This agenda was submitted to the partcipants for their reactions. After their response had been reviewed, the final workshop agenda was developed. (A copy of this agenda is included in Appendix H.) The first session in the second workshop was devoted to basic skills in communications. In the second session, the participants were involved in applying a task based curriculum development process to their vocational program. Each participating team identified jobs related to their vocational programs, analyzed these jobs to determine the tasks involved, and selected a task for further analysis.

The last session on the first day of the second workshop was concerned with the meaning of reading level scores and techniques for determining the reading level of written materials. A copy of the papers prepared on readability is included in Appendix H. During this session, the participants were involved in rewriting materials to make them more readable. Alternative ways to present information were also discussed.

During the second day of the workshop the participants focused on carefully analyzing a task into detailed steps for use in their curriculum. Margaret Wiinimaki, who had experience in developing courses and instructional materials for EMR students in the field of Home Economics, presented the methodology for task detailing and worked with participants in detailing a task they had selected.

After the second workshop, the participating teams worked on developing a small sample of instructional materials to try out the task detailing process and to apply some techniques for presenting vocational instruction to EMR students. During this time, the project staff members communicated with the participants to determine their needs and identify an agenda for the third workshop to be held during the summer of 1975.

Based upon the feedback from the participants and the project staff members analysis of need, an agenda was developed for the third workshop. (A copy of the agenda for the workshop III is included in Appendix J.) The third workshop presented techniques for identifying jobs for EMR students and possibilities for restructuring jobs to fit the performance capabilities of these students. One day was devoted to teaching techniques and strategies appropriate for EMR students. After each of the presentations related to these topics, the participants identified techniques appropriate for the learning modules they were developing.

A part of one day was used to present various techniques for individualizing instruction. Primary emphasis was given to those techniques which did not require extensive reading. A variety of non-verbal learning packages were displayed for the participants. These ideas were used to identify techniques for individualizing instruction for the participants' EMR students. Another session was based on the interpretation of test and work evaluation information. Each participating team had work evaluation data available on their students. This session assisted them in interpreting this information.

During the workshop, a presentation was also made on a task and competency based evaluation system. This presentation emphasized the importance of using evaluation techniques which stressed the performance of occupational tasks rather than the use of written tests. The procedures identified also emphasized the importance of continuous evaluation and provision of appropriate feedback for the students.

The second week of workshop III was planned to provide time for participants to develop a complete module of vocational instruction for EMR students. The modules are based on a task or sub-set of tasks required in a given occupation. Instructional strategies and learning activities

were designed based upon the techniques presented during the first week of the workshop. Valid evaluation processes were also identified. In addition the participants developed alternative learning activities for students who had a variety of learning styles. (A sample of these learning activities is contained in Appendix M.)

A summary and dissemination workshop was conducted in November, 1975. During the initial part of this workshop each of the participating teams reported on the materials they had developed and their utility in the classroom. The last portion of the agenda was a swap and share session between the participants and those attending the conference. Vocational educators from throughout Wisconsin were invited to attend the workshop. Approximate 120 persons attended the November workshop. Secondary, post-secondary and State Education agency personnel were in attendance.

The members of the participating teams suggested this emphasis for the last workshop. It was their feeling that it would provide needed information to vocational educators throughout the state. In addition it encouraged the teams to organize and formally report their programs. The workshop was a success on both parts. Many favorable comments and follow-up requests were received from those in attendance.

Assistance to LEA's Outside the Project. As a result of the project's request to the Madison Public School System for a participating team, the project director received a request to provide an in-service course for their practical arts teachers. The purpose of this course was to develop competency in working with EMR students in practical arts courses. By that point in time, the project staff had identified a tentative list of competencies needed. Also, the Madison Public School System had two competent instructors who had experience working with EMR students. Thus, a course was developed for twenty-four staff members in the four high schools in Madison, Wisconsin. Most of the competencies identified for the four workshops just discussed were included in this course. The one exception was the small emphasis given the task based curriculum development process in the in-service class. (See Appendix N of an outline of the Madison in-service course.)

The in-service course had the advantage of paralleling the teachers' involvement with EMR students. This course was designed to present information and techniques during a class meeting which were then applied in the classroom during the ensuing week. The next session allowed the teachers to discuss problems encountered in the application process and then go on to additional content. Feedback from the participants and the persons staffing the course indicated that this was highly successful. The project director reviewed the instructional materials developed by the participants and found them to be of high quality. It appeared that the opportunity to parallel the in-service workshop or course with actual classroom teaching was very fruitful.

In September and October, 1975 the participating team members tried out the instructional modules they developed during the summer workshop. Also, project staff members visited most of the participating schools. Near the middle of December, the participants were asked to evaluate

two workshop agenda. The data from the four workshops conducted by the project, the participants reactions to the draft agendas, and the competency data were utilized in constructing the final design for the workshop.

Based on the experience in this project and the feedback from the participating team members, it was scheduled that a two week workshop could provide the competencies needed to initiate effective vocational instruction for EMR students. To accomplish this, however, the workshop must be set in the appropriate context. The data in Table III-3 indicate the perceived level of competence expressed by the participants as they completed the project. Considerable growth was evident in several areas. For example the ability to conduct a task analysis grew from a mean of 2.875 to 4.167. Other areas still show need. For instance, participants indicated that their average terminal ability was 3.5 or utilizing a competency based evaluation system. In contrast they thought they needed a level of 4.75. (See Table III-3 for a summary of these data.)

Workshop agenda. If a school system has a sincere desire to develop an effective vocational education program for the EMR student, it must plan for more than a single workshop. Figure III-8 describes a sequence of events which must be utilized if there is to be high probability of a workshop having a lasting impact on the participants. The first phase of the sequence of events is the establishment of a positive climate for change. Staff and administrators must identify vocational education for the EMR student as one of the priority areas for their school system. If this is not done, it is very likely that any program development attempts will be sporatic and uncoordinated. This phase is extremely critical. Unless emphasis is placed on program development in this area, there will be little motivation to spend the time and effort required to construct new courses, curriculum materials, and teaching approaches.

The second phase involves the determination of student needs, workshop participants' needs, and securing workshop staff. A needs assessment of EMR students should be taken to identify their characteristics, and specific vocational education needs. These will vary somewhat from school to school and thus it is important that each school system collect its own information.

After the needs of students have been identified, the staff competencies should be assessed. The assessment instrument for this can be based on the competency instrument utilized in this study and the specific needs of students identified in the first activity in this phase. Identification of the competencies of the participants in the workshop at this stage will allow the workshop planners to adjust the agenda and select appropriate workshop staff. It may also be possible to utilize the local staff as resource persons at various points in the workshop agenda.

After the needs of students and participants have been analyzed, the final workshop agenda, staff, and resource persons can be identified.

The next phase involves conducting the workshop. The specific activities and sequence of events in the workshop are detailed in the workshop agenda which follows. This agenda was designed based on the research conducted in the Vocational Teacher Competency-EMR Project. An attempt was made to provide a considerable amount of time for the participants to apply the contents pre-

Table III-4

Post Assessment Report of Competencies Needed by Vocational Teachers in Order to Teach EMR Students as Perceived by the Vocational Teachers in the Vocational Teacher-EMR Project

KEY:

No Proficiency 1
Aware of the competency 2
Do With Assistance. 3
Do Without Assistance in most instances 4
Proficient (do without assistance or references) 5

Competency/Task/Attitude	Ability Needed Q2	Present Ability Q2
1. Conduct a task analysis of a job.	4.250	4.167
2. Utilize behavior modification techniques in developing desired behavior.	3.833	3.250
3. Utilize the internal and external referal processes to request information pertinent to classroom activities.	4.000	3.250
4. Ease the transition from school to work through instruction of job getting and job keeping skills.	4.250	4.000
5. Interrelate personality, social, and interpersonal ethics into classroom learning activities.	4.500	4.167
6. Utilize a competency based evaluation system rather than the A-B-C-D-F grading system.	4.750	3.500
7. Simplify instructional units into small learning steps with constant use of repetition and over-learning.	4.167	4.000
8. Construct instructional units in daily living skills (telling time, counting change, etc.)	3.500	3.500

Table III-4 (Continued)

Competency/Task/Attitude	Ability Needed Q2	Present Ability Q2
Communicate effectively using:		
9. Simple verbal expressions, explanations, and examples.	4.750	4.500
10. Simple physical demonstrations.	4.900	4.900
11. As many of the 5 senses as possible.	4.250	3.833
12. Organize Coop and on-the-job training programs.	3.333	3.667
13. Interpret diagnostic test data knowing its uses, limitations, and implications for classroom activities.	3.500	3.000
14. Translate medical and psychological reports into meaningful individualized vocational programs.	3.250	2.750
15. Understand the I.Q.'s relationship to predicting vocational success, potential motor abilities, and work attitudes.	3.167	2.500
16. Understand the job requirements (motor and social skills) in those occupations applicable to the EMR.	4.167	3.500
17. Utilize a public relations program.	4.167	3.000
18. Evaluate the EMR vocational training program effectively.	4.500	3.167
19. Provide a slower concept/skill learning pace.	4.500	4.000
20. Minimize lecturing and maximize learning by doing.	4.750	4.000
21. Maximize stimulation by fluctuating learning activities.	4.750	4.100
22. Build the EMR's self-concept through acceptance and success in classroom activities.	4.900	4.750

Table III-4 (Continued)

Competency/Task/Attitude	Ability Needed Q2	Present Ability Q2
23. Focus learning activities on what the EMR can do.	4.900	4.500
24. Promote an environment of high personal hygiene expectations.	3.833	3.833
25. Provide a "Work Bound" training atmosphere to set the stage for the ultimate transfer of the EMR to employment and his necessary adjustments toward independence.	4.167	3.000
26. Break complex motor skill tasks into simple steps.	4.500	3.900
27. Construct highly stimulating learning situations where judgment and discrimination are minimized and imitation is maximized.	4.500	3.500
28. Develop instructional units revolving around job-specific concepts and skills rather than general concepts and skills. (Mini-courses, Packages)	4.500	3.500
29. Accept personal and situational criticism from EMR's without antagonism.	4.500	4.750
30. Look objectively at personal prejudices and understand their influences on behavior.	4.500	4.167
31. Analyze interpersonal and personal-environment situations without request from or aid of the EMR.	4.000	3.000
32. Deal effectively with highly emotional situations such as student-student, student-school, student-home, or employer.	4.250	4.000
33. Utilize work sample evaluation reports effectively in program development.	4.167	2.500
34. Develop work sample based evaluation system.	3.833	3.000

Table III-4 (Continued)

Competency/Task/Attitude	Ability Needed Q2	Present Ability Q2
35. Conduct home visits.	3.900	2.167
36. Develop more positive attitude toward working with EMR's.	4.500	4.167
37. Adjust standards for performance expected of EMR's.	4.500	3.500
38. Develop work evaluation unit.	3.500	3.000
39. Effectively utilize the services of an A-V specialist.	4.250	4.000
40. Develop sheltered employment experiences.	2.500	2.000
41. Prepare video-tape demonstrations.	4.000	3.833
42. Develop A-V materials.	3.833	4.000
43. Conduct student interviews.	4.167	4.000
44. Evaluate effectiveness of teaching techniques.	4.500	4.000
45. Acceptance of individual differences of the EMR.	4.750	4.500
46. Interpret test results.	4.000	3.833
47. Develop behavior observation skills.	4.167	3.750
48. Develop an awareness of how to recognize students with problems in the regular class. (EMR, learning disability, etc.)	4.500	3.500
49. Learn how to change written material into other modes of instruction.	4.167	4.167
50. Develop positive attitudes toward working on a team.	4.750	4.900
51. Be aware of social and work problems encountered by EMR's.	4.250	3.833
52. How to evaluate a competency exercise.	4.500	3.000

Table III-4 (Continued)

Competency/Task/Attitude	Ability Needed Q2	Present Ability Q2
53. Determine what is the function of the administrator in developing the EMR program.	4.000	3.500
54. Give in-service training to other teachers working with EMR's.	3.500	3.500
55. Develop positive working relationships with governmental agencies involved with the families of the EMR.	4.000	3.000
56. Develop accurate progress charts of individual student progress in all courses, to include problems and specific concerns on an on-going basis.	4.000	3.500
57. Use staff from area university to assist in material adaptation and program planning.	4.500	2.500
58. Know local labor market trends and placement opportunities and problems.	4.500	3.500
59. Know vocational vocabulary.	4.750	4.500
60. Know safety procedures in relation to equipment.	4.750	4.500
61. Know how to write a proposal.	3.250	2.500
62. Develop alternatives to reading instruction.	4.000	3.500
63. Develop post-secondary programs.	3.833	2.500
64. Willingness to depart from traditional teaching strategies.	4.750	4.900
65. Plan in-service programs for regular class teachers.	3.500	3.500
66. Conduct follow-up contacts with EMR's after graduation.	3.500	2.500

Table III-4 (Continued)

Competency/Task/Attitude	Ability Needed Q2	Present Ability Q2
67. Develop alternative post-secondary vocational training opportunities for EMR's.	3.500	2.833
68. Conduct flexible learning experiences (be able to quickly adjust to student needs).	4.500	4.250
69. Respond to individual student needs.	4.500	4.750
70. Relate classroom instruction to life.	4.750	4.500
71. Develop special education vocabulary.	4.500	3.900
72. Develop cooperation with other departments.	4.750	4.500
73. Develop instructional units which will assist students in developing decision-making abilities.	4.000	3.900
74. Develop leisure time activities.	3.500	3.167

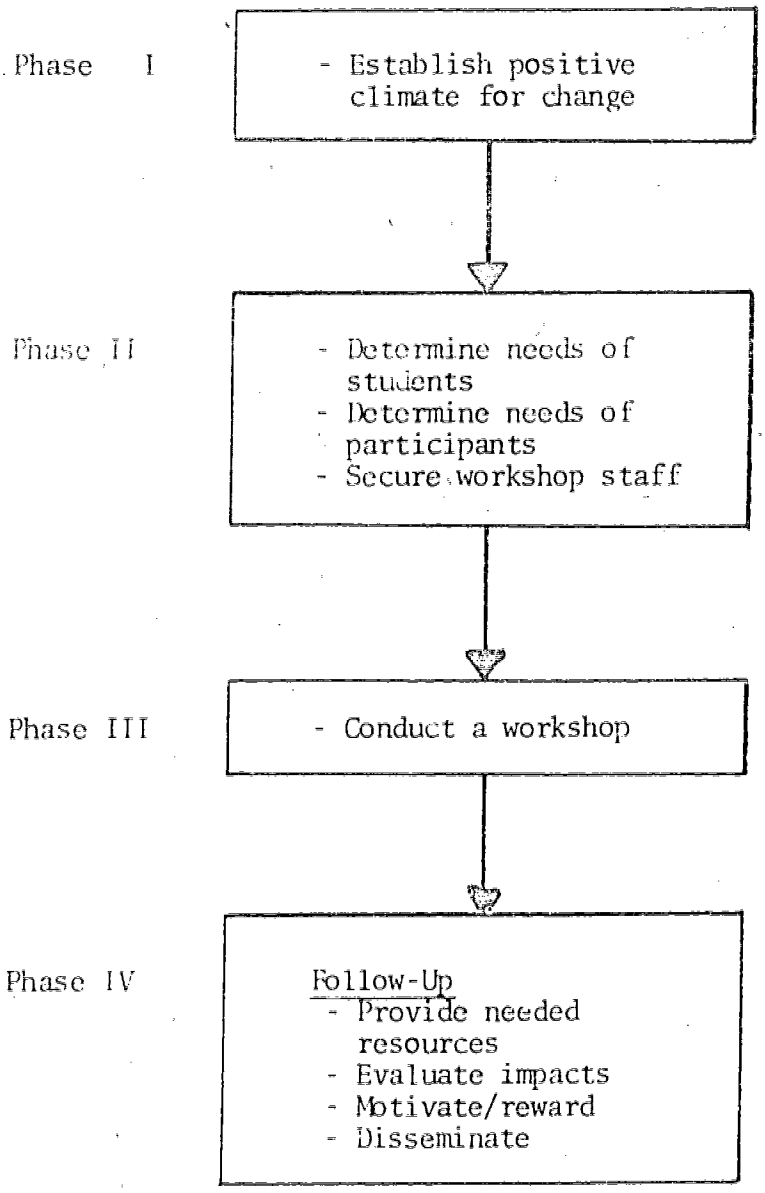


Figure III - 8: Major Events in Developing an Effective Vocational Education Program for EMR Students

sented in the workshop. Therefore, it would be important that the teachers come to the workshop prepared with a practical situation for which they can develop instructional materials, teaching strategies, and an evaluation plan. Also, resource persons and project staff should be oriented to utilizing techniques which involve the participants in the content presented. Experienced teachers are more interested in and usually learn more from activities which involve them directly with the content and processes to be learned.

The last phase is the follow-up. This phase is very critical if the workshop is to have long-range effects in the school system. The workshop will provide the basic skills needed to adapt vocational instruction to the learning styles of EMR students; however, unless there is assistance and motivation to continue the developmental efforts in this area the impacts of the workshop will be short-lived in most instances. The presures of other teaching activities and the extra amounts of energy required to develop new materials and approaches require that the participants receive recognition for their work, assistance with developmental activities, and an opportunity to disseminate their work. While all phases in this system are important, this last event must be carried out or it is likely that there will be few long-range impacts of the workshop.

The workshop agenda which follows was based on the workshops utilized in the project and suggestions of the project participants. Draft agendas were prepared during the latter part of the project and submitted to the participating team members. Their comments and suggestions were utilized in drafting the final copy of this agenda. As noted in previous paragraphs, it is important that this agenda be revised and modified according to the competencies of the staff members entering.

The agenda has been designed with the idea that several teams of teachers would be involved in the workshop. A team should have a special educator, a vocational educator, media specialist, and counselor. If the workshop is being conducted within a school system, it may not be necessary to have a counselor and media specialist available for each team. Instead, one media specialist and one counselor might work with several teams.

It may not be neccessary to have the counselor and media specialist attend all of the sessions of the workshop. The participants on the VTC-EMR Project felt that most, if not all, of the sessions were worthwhile. For media specialists those that deal with the ways in which EMR students acquire and process information and media techniques which are most appropriate for students with these learning styles would be most germane. Also, the media specialists would be needed during the work sessions. Counselors would find the sessions on the characteristics and needs of EMR students of most importance. Sessions on teaching techniques and AV materials would probably be of less interest and importance.

During the initial sessions of the workshop, the counselors would provide a valuable resource in interpreting case study data and developing programs to meet the needs of the students described. During the second week of the workshop counselors should be available for consultation on the learning needs of the EMR students for which the teams are developing the materials.

The workshop should be staffed with a workshop director who has full time available for the workshop, time to plan prior to the workshop and time to follow-up on the impacts after the workshop has been completed. The workshop director should also have expertise in the area of vocational education for the handicapped. This would make it possible for the workshop director to make some presentations and serve as a resource person. However, it is recommended that the workshop director not become heavily involved in making presentations, one or two would be sufficient, since this would conflict with coordinating the workshop activities. Depending upon the number of participants it is recommended that there be one or two full-time workshop staff members in addition to the director. If the workshop has 16 people or less, one additional full-time staff member would be adequate. If the workshop has more than 16 a second workshop staff member should be added for each 16 additional participants. The staff members should be selected to supplement the competencies of the workshop director. Competencies required for each of the sessions are listed in the agenda. These should be reviewed prior to identifying staff.

In addition to the project staff, resource persons should be selected for specific sessions. These persons should have a high level of expertise in the area in which they are presenting. The agenda has been designed so that there is a work session after each of the presentations which require resource persons. Thus, the expertise of the resource person would be available during the application.

Suggested Workshop Agenda

Vocational Education for

EMR Students

Day 1

8:30 a.m. | Activity: Registration, coffee and conversation

9:00 a.m. | Topic: Orientation to the workshop | Speaker: Director of the workshop

- Welcome
- Why vocational education for EMR students is important
- Workshop Objectives
- Participant's roles and involvement
- Final products from workshop
- Discussion/Questions/Answers

- Experienced with workshops
- Experienced with vocational education for the handicapped
- Experienced in working with EMR's

10:30 a.m. Break

10:45 a.m. | Topic: Learning Model for EMR's | Speaker: Resource Person

- Discuss or use media to show that EMR's can acquire vocational skills
- Vocational needs of EMR's
- Inputs - How EMR student acquires information
- Processes - How EMR student processes information
- Output - How EMR responds

- Certified special education
- Experience in vocational education
- Experience in special education
- Knowledgeable of learning processes

12 Noon - Lunch

1:15 p.m.	Topic: Vocational Curriculum Development Processes	Speaker: Resource Person

- Identifying valid jobs
- Stud needs analysis (appl he content of previous session.)
- Task Analysis
- Identify competencies
- Simulate a task analysis of a simple job (work session). Identify a leader for each work group

- ▭ Experienced in vocational education
- ▭ Competent in task based curriculum development
- ▭ Knowledge of EMR learning styles

3:00 p.m. Break

3:15 p.m. Complete 1:15 session

4:00 p.m.	Topic: Review activities	Speaker: Workshop director

- Review day's activities
- Introduce tomorrow's activities
- Questions/suggestions

4:20 p.m. Adjourn

Day 2

8:30 a.m.	Topic: Discuss agenda for day 2	Speaker: Workshop director

8:45 a.m.	Topic: Needs of the EMR	Speaker: Discussion by participants

- Needs of EMR students in participant's discipline

* Identify chair person for each discussion groups.

#If there is sufficient time prior to the workshop participants should study the needs of their EMR students.

9:30 a.m.

Topic: Teacher needs assessment	Speaker: Project director

- Complete EMR Characteristics Instrument
- Discuss Characteristics
- Discuss results of pre-workshop needs assessment with participants
- Relate these results to contents of future workshop sessions

- Knowledgeable of EMR Characteristics
- Knowledgeable of Competencies teachers need

10:15 a.m. Break

10:30 a.m. Finish prior session

11:00 a.m.

Topic: Goals, issues and opportunities in Vocational Education	Speaker: Resource Person

- Unique contributions of vocational education
- Cluster vs. preparation for a specicfic job
- Classroom vs. on the job training
- Vocational education for the handicapped

- Experienced in vocational education
- Knowledgeable of goals and problems of vocational education
- Knowledgeable of trends in vocational education
- Knowledgeable of vocational education for the handicapped

Noon: Lunch

1:15 p.m. Complete previous session

1:45 p.m.	Topic: Case Study 1- Planning Occupational Learning	Speaker: Workshop director in charge.* Chairperson and recorder appointed for each group

- Introduction to the process and case study problem
- Groups review case study and recommend solution(s).
- Groups present solution(s)
- Discussion

- Competent in the case study method
- Knowledgeable of potential solutions for the problem.

* Checks for participants' competencies related to to the problem during work session.

3:00 p.m. Break

3:15 p.m. Complete previous session

4:00 p.m.	Topic: Review activities	Speaker: Workshop director

- Review days activites
- Introduce tomorrows activities
- Questions/ Suggestions

4:20 p.m. Adjourn

Day 3

8:30 a.m.	Topic: Discuss agenda for the day	Speaker: Workshop director
8:45 a.m.	Topic: Test and teacher collected data	Speaker: Resource person

- Basic statistics used in reporting test results
- Common tests of mental ability and their meaning

- Experienced in tests and measurement
- Able to interpret test data
- Knowledgeable in applying test data

- Diagnostic tests of reading and math abilities
- Interest tests
- Work sample data
- Utilizing data in curriculum and instruciton decisions
- Discussion/questions/answers

- Able to interpret test data
- Able to determine relevant/irrelevant test data when helping EMR's make vocational choices
- Competent in communicating this content to teachers

10:00 a.m. Break

10:15 a.m. Complete previous session

11:00 a.m.

Topic: Case study 2	Speaker: Workshop director. Group leaders and recorders appointed.

- Review Case study data
- Determine relevant/irrevelant material in case study
- Develop solution(s)
- Present and discuss solution(s)

- Competent in the case study
- Knowledgeable of potential solutions for the problem

* Check for participants' competencies related to the problem during work session

Noon - Lunch

1:15 p.m. Complete Case Study

2:00 p.m.

Topic: Vocational Potential of EMR's	Speaker: Resource person

- Matching abilities and experiences with job requirements
- Utilizing students' interests in selecting a job
- Assisting employers with job modifications

- Experienced in working with EMR vocationally
- Have background in vocational education
- Have experience in placing EMR's on jobs

- Developing the social skills needed on the job
- Discussion/questions/answers

- Knowledge of work evaluation

3:00 p.m. Break

3:15 p.m. Complete previous session

4:00 p.m.

Topic: Review Activities	Speaker: Workshop Director

- Review day's activities
- Introduce tomorrows activities
- Questions/suggestions

Day 4

8:30 a.m.

Topic: Discuss agenda for the day	Speaker: Workshop Director

8:45 a.m.

Topic: Group Leadership Skills	Speaker: Resource person

- Communications process
- Deriving group objectives
- Working to achieve objectives
- Motivating the reluctant performer. Dealing with confrontations and negative situations
- Questions/answers

- Knowledgeable of communications techiques
- Experience with group dynamics
- Background with MBO and/or goal setting strategies
- Background in applied motivational techniques

10:00 a.m. Break

10:15 a.m. Complete previous session

11:00 a.m.

Topic: Task Analysis Procedures	Speaker: Resource person or workshop director

- Overview of the task analysis process
- Review sample task analyses
- Relate task analysis to instructional development
- Questions/answers

- Competent in setting up task analysis of jobs
- Experienced in using task analysis in instruction
- Experienced in working with EMR's

Noon - Lunch

1:15 p.m.

Topic: Conducting a task analysis	Speaker: Same as previous session

- Participants identify jobs appropriate for EMR's
- Identify tasks for jobs related to areas taught by the participating vocational teachers
- Identify job(s) & tasks for which vocational instruction materials will be developed
- Break tasks into specific steps appropriate for EMR's
- Make curriculum and instruction decisions (Note: may want to go to a business to observe and analyze an actual job)

- Competent in setting up task analysis of jobs
- Experienced in using task analysis in instruction
- Experienced in working with EMR students
- Knowledgeable of jobs appropriate for EMR's
- Able to access ERIC

3:00 p.m. Break

3:15 p.m. Complete previous session

4:00 p.m.

Topic: Review activities	Speaker: Workshop director

- Review days activities
- Introduce tomorrows activities
- Questions/suggestions

4:20 p.m. Adjourn

Day 5

8:30 a.m.	Topic: Discuss agenda for the day	Speaker: Workshop director
8:45 a.m.	Topic: Modifying reading materials	Speaker: Resource person

- What reading scores mean
- Methods to determine reading levels
- Ways to modify reading materials appropriately for EMR's
- Discussion

- A reading specialist
- Able to interpret reading scores
- Able to present relevance & irrelevance of reading scores
- Experienced in working with EMR
- Able to present ways of modifying reading materials for EMR's

10:15 a.m. Break

10:30 a.m.	Topic: Modifying reading materials - work session	Speaker: Resource person from previous session and media specialist

- Review reading materials presently used by teachers
- Discuss ways to present materials other than through reading:
  1. Tapes
  2. Visuals, slides
  3. Lectures
  4. Lectures with visuals

5. Rewriting materials
6. Outline materials in handouts

- Practice rewriting a section of the reading materials used in participants' classes. Include any visual techniques needed.

Noon - Lunch

1:15 p.m.

Topic: Vocational Education Model for EMR's	Speaker: Resource person

- Career Education sequence for EMR's
- Occupational preparation - some alternatives.
- Relevant and practical learning environments - Hands On approach
- Experienced with the vocational & social skills EMR's need to succeed on the job
- Work experience

3:00 p.m. Break

3:15 p.m.

Topic: Application Session Develop Instructional Materials	Speaker: Workshop staff. Media Specialist

4:20 p.m. Adjourn

Day 6

8:30 a.m.

Topic: Review previous sessions and discuss agenda for day 6	Speaker: Workshop director

9:00 a.m.

Topic: Basic Techniques for developing self-paced instruction	Speaker: Resource person

- Non-verbal learning experiences

- Experienced based learning activities
- Alternative approaches to presenting information
- Designing learning to match the student's learning style.
- Designing learning experiences based on objectives
- Questions/answers

- A certified instructor
- Have experience working with EMR's
- Have experience in individualizing instruction
- Have sample materials available for review by participants

10:30 a.m. Break

10:45 a.m.

Topic: Developing mediated instruction	Speaker: Workshop staff and the resource persons from morning session

- Working with a media specialist
- Identifying the need for media
- Presenting ideas, information, and skills through media.

- Certified media specialist
- Able to demonstrate new techniques
- Experienced in working with EMR's
- Experienced in working with instructional development teams

Noon - Lunch

1:15 p.m.

Topic: Work Session	Speaker: Workshop staff and the resource persons from morning sessions

- Select a task from the task analysis
- Develop an outline for an individualized learning experience
- Review outline with workshop staff
- Complete individualized learning experience

3:00 p.m. Break

3:15 p.m. Complete work for prior session

4:15 p.m.	Topic: Review activities	Speaker: Workshop director

4:30 p.m. Adjourn

Day 7

8:30 a.m.	Topic: Review agenda for the day	Speaker: Workshop director

8:45 a.m.	Topic: Strategies for Teaching and Counseling EMR's	Speaker: Resource person

- Selecting teaching techniques to match students' learning styles and the nature of the content
- Integrating media with learning activities
- Teacher as a resource manager
- Counseling techniques
- Questions/answers

- Certified in Spec. Ed. & teaching secondary EMR
- Some counseling credits
- Psychology background

10:00 a.m. Break

10:15 a.m.	Topic: Effective vocational education programs for EMR's	Speaker: Resource person

- Describe effective approaches and programs
- Summarize characteristics of effective programs

- Interested in the broad scope of vocational education
- Qualified to teach in a vocational area

- Relate these programs to EMR's needs and characteristics
- Questions/answers

- Experienced with vocational programs for EMR's
- Working or has worked with EMR's in vocational programs

Noon - Lunch

1:15 p.m.

Topic: Work session	Speaker: Workshop staff and resource person from morning session

- Task analysis
- Individualization techniques
- Teaching strategies
- Work on development of instructional materials

3:00 p.m. Break

3:15 p.m. Continue work session

4:20 p.m. Adjourn

Day 8

8:30 a.m.

Topic: Review agenda for the day	Speaker: Workshop director

8:45 a.m.

Topic: Motivation and teaching strategies	Speaker: Resource person

- Learning activities that motivate EMR students
- Reinforcement for work accomplished as a motivator

- Certified in education
- Experienced in teaching
- Experienced in working with EMR's
- Knowledgeable of learning styles of EMR's

- Positive and negative reinforcers
- Teaching strategies that increase students' success
- Questions/answers

10:15 a.m. Break

10:30 a.m.

Topic: Classroom Management	Speaker: Resource person

- Applied behavior modification techniques
- Use of reinforcement to develop desired behaviors
- Learning experiences and classroom management
- Questions/answers

- Certified in education
- Experienced in secondary special education
- Knowledgeable of learning styles of EMR's and behavioral patterns

Noon - Lunch

1:15 p.m.

Topic: Work session	Speaker: Workshop staff and available resource person

- Develop instructional modules

- Staff and resource persons help as needed

4:20 p.m. Adjourn

Day 9

8:30 a.m.

Topic: Review agenda for the day	Speaker: Workshop director

8:45 a.m.

Topic: Classroom Evaluation techniques	Speaker: Workshop staff

- Practical evaluation model
- Identifying valid performance measures
- Stressing performance measures rather than written tests
- Performance evaluation techniques
- Quesitions/answers

- ☐ Experienced in constructing tests and measurements for vocational education
- ☐ Experienced in constructing performance evaluations
- ☐ Experienced in analyzing test data
- ☐ Knowledgeable of the learning styles of EMR's

10:00 a.m. Break

10:15 a.m.	Topic: Application session. Develop evaluation portion of module	Speaker: Workshop staff serve as resource persons

Noon - Lunch

1:15 p.m.	Topic: Work Session	Speaker: Workshop staff

- Complete instructional modules

3:00 p.m. Break

4:20 p.m. Adjourn

Day 10

8:30 a.m.	Topic: Planning session	Speaker: Workshop staff

- Plan presentation of unit
- Prepare materials for presentation

10:00 a.m. Break

10:15 a.m.	Topic: Presentation of modules	Speaker: Team (group) leaders

Noon - Lunch

1:15 p.m. Complete presentation

2:00 p.m.	Topic: Workshop Evaluation	Speaker: Project staff

- Did the workshop meet its' goals?
- Did the participants acquire new competencies & direction in developing vocational curriculum & instructional materials for EMR's
- Was the workshop agenda efficient

2:30 p.m.	Topic: Challenge to continue to apply the contents of the workshop	Speaker: Workshop director

3:00 p.m. Adjourn

Post - Workshop

- Follow - up with participants to ascertain application
- Provide resources for application and implementation
- Encourage participants to continue their work. Include vocational education for the handicapped as a top priority in their schools, goals and mission.

Feasibility of Using an Interactive Computer Program

As noted in previous sections, a majority of the vocational teachers involved and many of the special educators indicated a need for additional competencies in a variety of areas. Several delivery systems are available for presenting learning experiences which will develop these competencies. The variety of needs identified in previous sections suggests that an individualized system would be the most efficient in terms of the individual teacher's time. Also, the opportunity to study at one's own pace those materials which are most directly related to one's needs would be most motivating. In addition, there are some needs which involve the analysis and storage of large amounts of information. Use of this information will be dependent upon an efficient storage and retrieval system.

The computer can be a useful tool in accomplishing these ends. An increasing number of local education agencies have acquired computer terminals or have access to them. Therefore, use of a computer is possible in many schools.

Job Retrieval Programs. One of the major concerns or first questions raised by vocationsl educators when challenged with providing vocational instruction for EMR students is "What jobs will they be able to obtain?" A basic criterion for evaluating the effectiveness of vocational instruction is job placement. Therefore, vocational educators are very concerned with the capability of placing their graduates on jobs. Since the EMR student is often more difficult to place, the match between individual capabilities and job requirements must be more accurate than with persons who have average or above average capabilities.

Most vocational educators have not been concerned with identification and analysis of jobs which might be suitable for EMR students. They usually have not identified jobs in the local community for which the EMR could be prepared.

Special educators in the project indicated a need for job identification as well. Their backgrounds usually did not include training in job analysis skills. However, they usually have experience in surveying the local community to define work stations and jobs for their students.

What is needed is a system which will identify, store, quickly retrieve, and list a variety of jobs available for students with given capabilities. This system would encourage vocational and special educators to review the jobs available in their local community and identify the level of capabilities needed in these jobs. This activity will make them more aware of the occupational opportunities in their community and the nature of business and industry in their area.

Efficient storage and retrieval of this job information can be done by computer. The project's programmer developed a simple program which can be run on a time-sharing terminal. The program is written in BASIC and runs on a PDP 11/40 computer system. A sample of the printout is included in Table III-4. In order to use the program the teacher would type "run" DOT. This will retrieve the computer program from memory. The next six lines in the printout included in Table III-4 present information on how to run the program and

Table III-4
Job Retrieval Printout

```
RUN DOT
*** THIS PROGRAM ASSISTS YOU IN SELECTING JOB TITLES ***
*** BASED ON SEVERAL CRITERION WHICH YOU SELECT      ***
    IF YOU DECIDE NOT TO SELECT ANY SINGLE CRITERION, THEN ALL
    ENTRIES WILL BE INCLUDED FOR THAT CRITERION
    FOR EXAMPLE (IF YOU SELECT *ONLY* OCCUPATION GROUP 3, THEN
    ALL JOB TITLES IN GROUP 3 WILL BE LISTED
DO YOU WANT TO SELECT *OCCUPATION GROUP* (YES OR NO)? NO
DO YOU WANT TO SELECT *LEVEL OF AB ITY OF DATA*? YES
ENTER LEVEL OF ABILITY OF *DATA*? 7   OR 9
DO YOU WANT TO SELECT *LEVEL OF ABI  TY OF THINGS*? YES
ENTER LEVEL OF ABILITY OF *THINGS*  7 OR 8 OR 9
DO YOU WANT TO SELECT *LEVEL OF ABILITY OF PEOPLE*? YES
ENTER LEVEL OF ABILITY OF *PEOPLE*? 7 8 OR 9

  THE OCCUPATIONAL TITLES ARE:

306.878 010  MAID GENERAL
307.878 010  NURSEMAID
311.878 010  BUS BOY
311.878 058  WAITER INFORMAL
318.887 010  KITCHEN HELPER
323.887 014  MAID
355.878 034  NURSE A )
381.887 030  PORTER
519.887 022  FOUNDRY WORKER GENERAL
706.887 010  ASSEMBLER PRODUCTION
739.887 034  ASSEMBLER SMALL PRODUCTS
919.887 010  CLEANER
920.887 110  PACKAGER HAND
922.887 070  LABORER STORES
929.887 046  LABORER SALVAGE
929.887 050  MATERIAL HANDLER
354.878       HOME HEALTH AIDE (HOME ATT'D) OR FIRST-AID ATTENDANT
359.878       CHILD-CARE ATTENDANT OR KINDERGARTEN AIDE
829.887       MATERIAL HANDLER
292.887       MATERIAL HANDLING SALESMAN OR DRIVER-HELPER
299.887       RETAILING STOCK GIRL OF WOMEN'S APPAREL
317.887       FOOD PREPARATION COOK HELPER
406.887       NURSERY WORKER (LANDSCAPING)
441.887       FOREST-FIRE FIGHTER
407.887       PARK WORKER
449.887       SEED-CONE PICKER
860.887       CARPENTER HELPER
844.887       CEMENT MASON HELPER
866.887       ROOFER HELPER
861.887       BRIC  YER HELPER
339.887       SEXTON (BUILDING MAINTENANCE AND SERVICE)
369.887       LAUNDRYMAN/LAUNDRESS
309.878       CLOTHING MAINTENANCE SPECIALIST
780.887       UPHOLSTERER HELPER
827.887       ELECTRICAL APPLIANCE SERVICEMAN HELPER
807.887       AUTO-BODY REPAIRMAN HELPER

*** DO YOU WANT TO TRY ANOTHER SELECTION? NO
Ready
```

obtain the desired job listing. The next seven lines ask the user to answer certain questions. Options are available to select a specific occupational group as identified in the DOT, or to select given levels of ability on data, things, and/or people. In the example the user has requested a list of occupations which have level 7, 8, or 9 on data, people or things. The occupational titles which are in the program and which met the criteria identified are listed in the second part of Table III-4. This list was quickly generated by the computer.

As a large number of appropriate jobs are identified, the computer program will be more effective. Use of the DOT numbers for indexing the jobs provides a cross link with other data bases such as those kept by the Job Service. (A copy of the program is given in Appendix O.)

The high level of need for job innovation related to EMR students noted by vocational teachers and special educators would indicate that this program would have utility.

EMR Characteristics. Another area of significant concern on the part of vocational teachers is the characteristics of the EMR learner. Most of these teachers have had relatively little exposure to these students and to coursework specifically related to the learning styles of EMR's. Therefore there is a need for efficient system for presenting information on the characteristics of EMR's which can be utilized in developing more effective instruction for EMR students.

The research specialist for the project reviewed research and used her special education teaching experience to identify the most essential characteristics of EMR's.

Table III-5 presents a printout from the EMR characteristics computer program developed by the project staff. After the user has logged onto the terminal, a set of directions are presented. These directions describe the nature of the program and how to respond. As noted in the sample printout in the Table, a statement is presented to the user. After the person has made a response, a comment is typed to indicate whether the individual's response is correct or incorrect. An incorrect response is followed by a comment based upon the research findings summarized by the project's research specialist. For example, on item 4 an incorrect response was entered. The narrative describes the appropriate characteristics of the EMR student in relation to this statement.

Based on the pilot run of the instrument with the participants in the VTC-EMR Project and a try-out of the computer program with a sample of graduate students, it will be an effective way to present information on EMR learning styles to vocational teachers. The terminal and computer system are intriguing and motivating to the user. In addition, the contents of the program are valid in relation to the characteristics of EMR's. Incorrect responses are followed by information on the correct characteristic.

Table III-5

EMR Characteristics

```
RUN EMR

                    EMR  CHARACTERISTICS

BELOW IS A LIST OF POSSIBLE LEARNING CHARACTERISTICS OF THE EDUCABLE
MENTALLY RETARDED PERSON.  PLEASE RATE EACH CHARACTERISTIC ACCORDING
TO THE FOLLOWING SCALE:
     STRONGLY DISAGREE. . . 1
     DISAGREE . . . . . 2
     UNDECIDED. . . . . 3
     AGREE. . . . . 4
     STRONGLY AGREE . . . . 5
ENTER THE NUMBER OF YOUR ANSWER, THEN PUSH RETURN.
***** TO HAVE THESE INSTRUCTIONS RE-PRINTED TYPE -HELP- *****


1. HAS LIMITED COMMUNICATION SKILLS.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 5
*** YES THAT IS CORRECT ***

2. HAS LIMITED MOTOR COORDINATION.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 2
*** YES THAT IS CORRECT ***

3. LACKS REASONING AND JUDGMENT.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 5
*** YES THAT IS CORRECT ***

4. SEEKS IMMEDIATE SATISFACTION.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 2
NO THAT'S WRONG
MOST EMR'S SEEK IMMEDIATE SATISFACTION. THEIR INABILITY TO PERCEIVE &
IMAGINE SOMETHING IN THE FUTURE IS OFTEN LIMITED BECAUSE OF THEIR
SLOWNESS IN MATURATION OF INTELLECTUAL FUNCTIONS.

5. HAS HIGH FRUSTRATION TOLERANCE.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 4
NO THAT'S WRONG
LOW FRUSTRATION TOLERANCE IS ASCRIBED TO THE EMR. IT IS ALSO RELATED TO
REPEATED FAILURES IN LIFE, AT HOME, AND AT SCHOOL.

6. STRIVES FOR ATTENTION.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 5
*** YES THAT IS CORRECT ***

7. HAS DIFFICULTY UNDERSTANDING ABSTRACT FUNCTIONS AND IDEAS.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 5
*** YES THAT IS CORRECT ***

8. CANNOT GENERALIZE FROM ONE SITUATION TO ANOTHER.
(1. SD) (2. D) (3. U) (4. A) (5. SA)? 3
NO THAT'S WRONG
EMR'S LACK REASONING, GENERALIZING AND IMAGINATIVE ABILITY DUE TO
SLOWNESS IN DEVELOPMENT OF SPECIFIC INTELLECTUAL FUNCTIONS.
```

Other Programs Under Development. Because of the interest shown in interactive computer programs for in-service and program development for vocational education for the handicapped, the Center for Vocational, Technical and Adult Education at UW-Stout is continuing its development of these programs. At the present time, a program which will aid a teacher in doing a reading level analysis of instructional materials is being developed. This program will raise a series of questions requesting the teacher to input information on the characteristics of reading materials. The program will take these characteristics and determine the reading level for the set of materials.

Another program under development is one which will analyze the mathematics skills required in a learning activity. The teacher will describe the types of mathematical operations required in order to carry out the learning activity or project. A computer program will search mathematical skills by grade level matrix stored in memory to determine the grade level at which the person must have functional skills in order to do the activity. This program will also describe the prior skills required in order to do the mathematics included in the project or activity.

The use of interactive computer program appears to be very feasible and has the potential for making a significant contribution to the improvement of vocational education programs for EMR students. These programs can involve vocational teachers in interesting and meaningful experiences which will help them acquire an understanding of the learning styles of EMR's. In addition, these programs can reduce the mundane work required to analyze the reading levels and math levels of instructional materials and learning activities.

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