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AN ANALYSIS OF A WORK-STUDY PROGRAM OF SPECIAL
EDUCATION-VOCATIONAL REHABILITATION

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JOSEPH HENRY LAWTER
1968

AN ANALYSIS OF A WORK-STUDY PROGRAM OF SPECIAL
EDUCATION-VOCATIONAL REHABILITATION

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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	vi
Chapter	
I. INTRODUCTION.....	1
The Project	
Need for Study	
Statement of Problem	
Hypotheses	
Limitations of Problem	
Methodology	
Organization for Study	
II. REVIEW OF RELATED LITERATURE.....	15
Identification	
Work-study Programs	
Work Success Predictions	
Summary	
III. DESCRIPTION OF THE PROJECT.....	31
Processing of the Student	
The Curriculum	
Team Approach	
Staffing	
Occupational Experiences	
IV. DESIGN AND METHODOLOGY OF THE STUDY.....	50
Basic Plan	
Data Collection	
The Instrument	
Statistical Procedure	

Chapter	Page
V. ANALYSIS OF DATA.....	62
Composition of the Study Sample	
The Hypotheses	
Related Sample Analysis	
VI. SUMMARY.....	77
Findings	
Conclusions	
Recommendations	
BIBLIOGRAPHY.....	84
APPENDIX	
A. QUESTIONNAIRE-INTERVIEW INSTRUMENT USED IN SECURING DATA FROM NINETY FORMER E.M.R. STUDENTS OF THE OKLAHOMA CITY SCHOOLS.....	88
B. COMPUTATION OF THE F RATIO BETWEEN GROUPS, RACE AND INTERACTION.....	93
C. COMPUTATION OF HARMONIC n FOR UNEQUAL CELLS OF A 2 X 3 ANOVA TABLE.....	94
D. COMPUTATION FOR SIGNIFICANCE USING THE t TEST BETWEEN THE CONTROL, DROP-OUT AND GRADUATE GROUPS.....	95
E. SIGNIFICANT CORRELATIONS OF T-SCORES FOR ITEMS USED TO DETERMINE CRITERION SUCCESS VARIABLES RELATED TO THE STUDY WITH T-SCORES FOR PREDICTOR VARIABLES.....	96

LIST OF TABLES

Table	Page
1. Job Classification for 436 Mentally Retarded Students Assigned to Cooperative Work-Study Programs in Texas.....	21
2. Comparison of Score Position and Employer's Judgment for CS Students.....	28
3. Comparison of Score Position and Employer's Judgment for R Subjects.....	28
4. Unit Guides for Educable Mentally Handicapped Students as Developed by the Oklahoma State Department of Education.....	36
5. Jobs Held by Mentally Retarded Rehabilitants as Reported in Final Report for 59 Students Whose Cases Were Closed.....	46
6. Employers' Evaluation of Students Reported as Rehabilitated in Final Report for 63 Students Whose Cases Were Closed.....	46
7. Services Purchased for 87 Mentally Retarded Rehabilitants.....	49
8. Services Purchased for 87 Mentally Retarded Rehabilitants with a Primary Disability.....	49
9. Descriptive Statistics for Frequency Distributions of Criterion Variables.....	56
10. Individual I.Q. and Chronological Age for Ninety E.M.R. Former Students by Race.....	64
11. Socio/Occupational Mean Scores for Study Groups and Subgroups.....	65
12. Analysis of Variance for Unequal Norms Between Race, Experimental Groups and Interaction of Both Factors.....	66

Table	Page
13. Data Used in Computation to Determine Significance on the T Test Between Experimental Groups.....	68
14. Mean of Months on Job as Reported by 90 Mentally Retarded Students of Oklahoma City Public Schools by Race and Research Group.....	70
15. Mean Hours of Employment per Week of Working Students by 90 Mentally Retarded Students of the Oklahoma City Public Schools by Race and Research Group.....	71
16. Types of Employment by Race and Research Group as Reported by 90 Mentally Retarded Former Students of Oklahoma City Public Schools.....	71
17. Mean of Months Between Training and/or School Termination as Reported by 90 Mentally Retarded Students of the Oklahoma City Public Schools by Race and Research Group.....	72
18. Mean Financial Factors by Groups for 90 Mentally Retarded Students as Reported on an Interview Questionnaire.....	73
19. Relationships Which Gave the Greatest Happiness as Reported by 90 E.M.R. Former Students by Groups.....	74
20. Relationships Which Gave the Next to the Greatest Happiness as Reported by 90 E.M.R. Former Students by Groups.....	75
21. Mean Variables of Leisure as Reported by 90 E.M.R. Former Students by Race and Group...	76

AN ANALYSIS OF A WORK-STUDY PROGRAM OF SPECIAL
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CHAPTER I

INTRODUCTION

A generally accepted philosophy of education in the American democracy today is that of providing for all children and youth an education which challenges their potential. A review of the literature indicated that educational objectives have been developed for students of all ranges of mental ability. The research of Baller,¹ Charles,² and Hegge³ and many others provided data which suggested that the mentally retarded could become useful members of society both socially and vocationally.

An assumption exists among most professional

¹Warren Baller, "A Study of the Present Social Status of Adults Who When They Were in Elementary School Were Classified as Mental Deficient," Genetic Psychology Monograph, XVII (June, 1966).

²Don O. Charles, "Ability and Accomplishments of Persons Earlier Judged Mentally Deficient," Genetic Psychology Monograph, XLVII (February, 1953).

³Thorlief Hegge, "Occupational Status of Higher Grade Defectives in the Present Emergency," American Journal of Mental Deficiency, IL (1944), pp. 86-98.

educators that good schools everywhere must develop educational programs for students who fall into all ranges of mental ability, aptitude and interest. Any attempt to implement this goal must therefore include effective efforts to develop and make available, programs which are especially designed for mentally handicapped pupils. One of the most difficult and necessary responsibilities which must be discharged in meeting the educational needs of the educable mentally retarded, hereafter referred to as E.M.R., is in the area of vocational education. This means the identification and development of programs which meet the needs of the E.M.R. students.

One of the earliest attempts to identify vocational goals for mentally handicapped students was by Bird¹ in 1922, who suggested that boys with low I.Q.'s turned out better work than brighter boys. Coudery,² also in 1922, did a study of 578 Whittier State school boys, ages 12-19, assigned to 22 different trades, in which he concluded that persons of limited mental abilities operated more efficiently than those of higher intelligence, provided supervision is given. The earlier

¹V. A. Bird, "A Study in the Correlation of General Intelligence and Progress in Learning Machine Shop Work as Related to the Problem of Educational Guidance," Industrial Education Magazine, 24 (1922), pp. 67-69.

²K. M. Cowdery, "Measures of General Intelligence as Indices of Success in Trade Learning," Journal of Applied Psychology, 6 (1922), pp. 311-330.

studies failed to distinguish between the various classifications of skills but did provide an assumption that the lack of mental capacity provided a person with a manual ability. This theory has been used by the lay public for a number of years as justification for providing vocational education for the non-academic student. This theory has been disproved and has not been generally accepted by psychologists, educators, and researchers for the past thirty years.

Education for mentally retarded students showed an unusual growth since World War II. The programs and curriculum have assumed new dimensions, as parent pressure groups insisted upon effective exploration into goals and objectives which were meaningful. The objective of providing a work-study orientated curriculum was proposed by two respected educators, Kirk and Johnson, who stated, "They should learn to participate in work for the purpose of earning their own living; i.e., they should develop occupational competence through efficient vocational guidance and training as a part of their school experience."¹

A report of the United States Congressional Committee studying juvenile delinquency drew this conclusion: "Lack of opportunity for paid work is an important cause

¹Samuel Kirk and G. O. Johnson, Educating the Retarded Child (Boston, Mass.: Houghton Mifflin Co., 1951), p. 118.

of juvenile delinquency, partly because denial of a chance to earn money puts an adolescent in a childlike status and does not permit him to progress smoothly toward adulthood."¹ Programs of work-study provided the student with a status position in his environment which was not provided in his formal special education program. In a recent publication Havighurst² indicated that the educable mentally handicapped student can make a fairly good adjustment in adolescence and adulthood if he can find simple work.

Two basic power groups, political and parental, have demanded quality programs for the educable mentally retarded student. These interacting groups worked inside and outside of governmental agencies to create new programs which would provide a sound base for the educable mentally retarded of high school age. The statutes of most states have required that all students remain in high school until the age limit without regard to limiting mental and physical factors. The responsibility for training all handicapped students including the mentally retarded, was a factor in providing new programs in the early 1960's in the state and nation.

¹United States 86th Congress (1960), Report on Juvenile Delinquency (Washington, D.C.: U.S. Government Printing Office, p. 27.

²R. J. Havighurst and Bernice L. Heugarten, Society and Education (Boston, Mass.: Allyn-Bacon, 1967), p. 336.

A limited number of secondary schools had effected changes in the basic instruction of educable mentally retarded students when they received support from governmental agencies and parents of the handicapped. The basic structure of the work-study and/or cooperative program was being conceptualized in many secondary schools as reported by Ebersole,¹ Gehrke,² Muller, and Lewis.³ The literature and research reported basic concepts in support of the work-study program and a descriptive analysis of the content of the programs.

One of the early programs in Oklahoma was conducted by three agencies as a cooperative effort between (1) Oklahoma Vocational Rehabilitation Division, the Oklahoma City Public Schools and the Oklahoma State Department of Education, Special Education Division. Special Education Classes for the E.M.R. had been conducted in very few secondary schools prior to the pilot program initiated by the three collaborating agencies in March, 1961. Central High School was selected as the project school because of

¹Ladean Embry-Ebersole, "A Study of the Curriculum and Environments and Initial Rehabilitation Processes for Mentally Retarded Young Adults" (Unpublished Ed.D. Dissertation University of Alabama, 1965).

²A. W. Gehuke, "How the State Helps Retarded Students," Minnesota Journal of Education, 46 (June, 1966), pp. 35-36.

³Virginia Muller and Mark Lewis, "A Work Program for the Mentally Retarded Students," Journal of Secondary Education, 41 (February, 1966), pp. 75-79.

three unique factors: economic deprivation of a high percentage of the student body, a racially integrated staff and student body, and the large number of handicapped students. The project was also designed to alleviate some of the conservative administrative procedures prevalent in each agency, which prevented constructive interaction.

The three year project was a cooperative program which provided techniques and ideas for planning a constructive curriculum to be used in the high schools throughout the state of Oklahoma. The research design was "action research," which is common in many programs financed by governmental agencies, and no formal research design was developed as an element in establishing the project. A few basic facts were provided in the report of the Research and Demonstration Project:¹

A study, made at the time, revealed that 28% of the eighth grade special education students did not enroll in the ninth grade of Central Secondary School. The same study revealed a 56% loss of students from the eighth to the tenth grades.

The Project

The purpose of the project was to focus intensive rehabilitation and educational services on a group of mentally retarded students to demonstrate the effectiveness

¹"Final Report of a Research and Demonstration Project by the Oklahoma Vocational Rehabilitation Service and the Oklahoma City Public Schools" (Vocational Rehabilitation Research Grant No. RD-771, July, 1964), p. 3.

of these services in providing job placement opportunities. Planning for the implementation of the special project was done jointly by three agencies: Central High School, Oklahoma Vocational Rehabilitation Services, and the Oklahoma State Department of Special Education.

The project plan was designed for three years (1961-1964), with a preliminary pilot study to be conducted during the months of March, April and May of 1961. The project plan had three basic responsibilities:

- (a) Basic curriculum revision toward realistic occupational and sociological goals.
- (b) Intensive staffing procedures to support project personnel, as they identified with the students.
- (c) Administrative adjustments to implement the project into a workable unit.

All E.M.R. students in the upper three grades (10-11-12) of the high school were placed in the project after its initiation in September 1961. A project student was qualified by an individual intelligence quotient of 50-75 and/or on the recommendation of the school psychologist. The vocational rehabilitation counselor assigned to the project as technical project director assumed case service responsibility. The involvement of all personnel in the project who had either administrative, counseling or teaching responsibilities provided a "team" approach which formed the basis for communication in the program.

The assignments of teacher-coordinators were made after careful consideration of many factors related to

students. Their basic assignment was divided into two broad areas: (1) Teaching a revised curriculum based on new socio/occupational goals and (2) Direct involvement in job placement, supervision and coordination of home environment. The vocational rehabilitation counselor assumed responsibility for: (1) Intake evaluation, (2) Planning for additional services, i.e., medical, physical, mental, and specialized training, and (3) Planning with other members of project team. These individual members of the team were supplemented in the various planning groups by the regular school counselor, director of the materials' center and other personnel from the three supporting major agencies.

The students assigned to the project responded to the innovations and gained a new status in the eyes of their fellow students, as project personnel began processing the objectives and goals. Basic limitations of the E.M.R. interacted to create these problems: (1) The service jobs, which basically were the jobs available, were of short duration, and (2) The vocational objectives had not been clearly defined in the goals of the project. The concept of "job conditioning" was accepted as a term which defined the objectives of the formalized training and created a realistic vocational goal for the project.

The vocational rehabilitation counselor maintained extensive records for each E.M.R. student as he progressed

through the training program and services provided by the cooperating agencies.

Need for the Study

Increasing numbers of work-study programs for high school mentally retarded students are being conceptualized and implemented in the secondary schools of the nation without formalized evaluation efforts. The effectiveness or ineffectiveness of these programs should be evaluated in relation to a selected group of variables affecting success for these handicapped students.

Statement of Problem

The problem of this study was to analyze the characteristics and evaluate the effectiveness of the work-study program of Special Education-Vocational Rehabilitation as conceptualized and operated at Oklahoma City Central High School.

Hypotheses

- H0₁ There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who have completed an experimental work-study school program and a group who participated in a regular special education program when race was statistically controlled.
- H0₂ There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who have completed an experimental work-study program and a group who failed to complete the program when race was statistically controlled.

- HO₃ There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who failed to complete an experimental work-study program and a group who participated in a regular special education program when race was statistically controlled.

Limitations of Problem

1. Methodology of the study was circumscribed around the limitations of students in the original project for the experimental groups and students within the same socio-economic geographical area in the control group.
2. Sampling procedure was limited to the availability of subjects.
3. The ninety subjects in the study were male, socio-economically deprived and identified by state statutes as special education students.
4. The research design was ex post facto which is less scientific than a true experimental design. Kerlinger comments that "despite its weakness, much ex post facto research must be done in psychology, sociology, and education simply because many research problems in the social sciences and education do not lend themselves to experimental inquiry."¹

¹Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, 1965).

Methodology

The basic design of this study was an analysis of variance experiment of unequal cell frequencies to determine significant differences between three groups: one control and two experimental. The students in the control group had participated in regular special education classes at Oklahoma City Douglas and Capitol Hill high schools, were never enrolled at Central High School and had not participated in the special project. A second group was formed of students who enrolled in the special Central High School project but dropped out before completing a significant part of the project. The third group was composed of students who completed the entire project culminating in a high school diploma. Each group included thirty students.

The initial selection and assignment of students was made by the Special Education Division of the State Department of Education as recommended by the Oklahoma City Public School's psychologist. The recommendations were made on the basis of a state law which required that students assigned to special education classes must score between 50 and 75 on an individually administered intelligence instrument. All subjects in the study were previously assigned to special education classes in the Oklahoma City Public School.

Selection of an instrument was complicated by the uniqueness of the students who until the last twenty years were not generally accepted in the public schools. The preparation of appropriate tools in securing data required detailed validation both for content and subjects. The development of "The Texas Screening Battery for Subnormals" by Dr. Peck et al. at the University of Texas produced a validated questionnaire instrument which, in their judgment, "is the most valid set of instruments adapted or developed for this purpose to date."¹ Johnson in his study suggested "that the interview is considered better in the exploratory stages as a research problem and is superior for research in cases where the respondent has limited mental and reading ability."²

An analysis was made of the instrument which secured information relative to the evaluation of after training success. The data in the instrument had been validated for personal, socio-civic and vocational success. The t-test was used to make individual comparison of differences relative to drop-outs and graduates, no training and drop-outs and no training and graduates. A mean deviation of each group was compiled to determine

¹J. R. Peck et al., The Texas Screening Battery for Subnormals (Austin, Texas: H.E.W. Publications, 1964).

²Carl Otto Johnson, Questionnaires and Interviews (Hontuerkargaton 78, Stockholm-Sweden, Almquist and Niksell, 1957), pp. 25-26.

significant differences between races using the F and t-tests.

Two trained teacher-coordinators in the Central High School Project administered the questionnaire instrument from rolls provided by the Vocational Rehabilitation Counselor assigned to the project. A balance was maintained by the counselors as they interviewed equal numbers within groups and equal numbers of Negroes and Caucasians.

Organization for the Study

This chapter presented the initial exploration into materials related to the study. A research design was selected based upon the data that were acquired from the interview-questionnaire, as the instrument approximated the purposes of the study. In Chapter II the literature was reviewed as it related itself to curriculum and work-study programs for the high school mentally retarded student. An analysis was made of the special programming and other significant changes in school procedures adopted for the project in Chapter III.

The remainder of the study concerned itself with research procedures including the method of acquiring data, selection of the instrument and the research design which was described in Chapter IV. Analysis of the data was made in Chapter V which included a determination of significance of the three nul hypotheses. The summary

chapter included the findings of the study which provided a base for making conclusions and recommendations.

CHAPTER II

REVIEW OF RELATED LITERATURE

Most of the literature in the area of work-study has, for many years, related to normal students in federally sponsored Distributive Education and Occupational programs. The emerging concern for the E.M.R. gave impetus to experimentation by the public schools in the field of work study type programs. The involvement of controlled experimentation, however, has been disappointing in the field of work-study as it relates to the adjustment of the E.M.R. into vocational aspirations. A review of the literature should prove contributive.

Identification

Students were identified for many years at an early age as mentally retarded on bases of conditions which are now considered highly questionable. Ruess,¹ in his study, indicated that a high status group lost some of its relative superiority when given a "culture-fair" test as

¹Aubrey L. Ruess, "Some Cultural and Personality Aspects of Mental Retardation," American Journal of Mental Deficiency, October, 1952.

compared to the conventional present-day intelligence tests. K. Ellis¹ indicated that most currently used intelligence tests are so constructed and administered that scores on them are influenced by the cultural backgrounds of the students taking the test. Pasamanick and Knoblock² presented a new concept which indicated that except for a few quite rare hereditary defects resulting in mental deficiency, at conception, individuals are quite alike and become different consequent to their experience. Maslow³ pointed out that individuals cannot be healthier, than in the culture in which they grow and live, and made the proposition that all men would be superior if it were not for the social and cultural thwarting to which they are subjected in their childhood.

A cooperative work study program⁴ in Orange, New Jersey reported descriptive data on 300 E.M.R. students included in the Experimental and Control groups and found the mean I.Q. to be 70.5 and the Social Maturity Quotient

¹K. Ellis, "Some Implications for School Practice of the Chicago Bias in Intelligence Tests," Harvard Educational Review XXIII (1953), 284-97.

²Benjamin Pasamanick and Hilda Knobloch, Understanding the Problem of the Disadvantaged Learner (San Francisco, Calif.: Chandler Publishing Company, 1966).

³Abraham H. Maslow, Motivation and Personality (New York: Harper and Row, Publishers, 1954), p. 352.

⁴Frances Geteles et al., Cooperative Vocational Pattern for In-School Mentally Retarded Youth, Department of Health, Education and Welfare, Project No. RD-1189.

on the Vineland Scale to be 85.3. This indicated a level of social competence higher than is usually found in normal retarded populations. Of importance was the racial and ethnic background which included 82% Negro, 5% Puerto Rican and 13% Caucasian. The report indicated a concern for the "labels" attached to the mentally retarded and the subsequential behavior of the individual after the diagnosis is made. Two significant statements were:

1. The statement that someone is retarded implies not only that his current functioning is below average, but also that his capabilities are inherently limited--i.e., not only that he has not learned, but that he is largely incapable of future learning. Thus, an effort may be made to help him improve his functioning, but this would be done in terms of limited, and perhaps limiting goals. However, for the person who has not learned, although he has the potential capability, this lowered level of aspiration may have negative effects, and may in essence not be helpful.
2. The statement that a person is retarded implies that his difficulty is primarily intellectual in nature, so that remedial efforts will concentrate their attention on learning. The learning problem may be in reality secondary to cultural or other major problems.

Based on these statements the report suggested that revision of existing diagnostic procedures is needed so that a person is not merely given a label, but rather is provided a realistic diagnosis. The report further implied that an attempt should be made to define the nature of the problem and consequently to structure the preferred direction of remediation attempts.

Work-Study Programs

The literature contained a number of articles in periodicals which related directly to the vocational opportunities for the E.M.R. in work-study programs. Several programs were initiated through the efforts of state vocational rehabilitation agencies and, as a part of their process, follow up reports were developed similar to the Milwaukee, Wisconsin project.¹ This report analysed a program which was similar in purpose to many of the school programs that were initiated during this period.

The Jewish Vocational Service, a civic group, met with special education groups from both local and state levels to plan a program of work adjustment for the mentally retarded. A determination was made that the school system had the basic responsibility to provide an adequate work experience type program which would be beneficial for retarded adolescents whose prognosis for vocational productivity was minimal. A grant was secured from the Vocational Rehabilitation Division of the Department of Health, Education and Welfare for a demonstration project to provide work-study experiences for the high school students of Milwaukee.

¹An Evaluation Study and Demonstration Work Experience for the Mentally Retarded during their Last Year in Public School (Milwaukee, Wisconsin: The Jewish Vocational Service and the Vocational Rehabilitation Service, Project 404, 1964).

The program provided physical and mental services from the state vocational rehabilitation agency for each student. Personnel in the program were selected and provided in-service training as a direct contribution by the grant. A program was planned which included an intensive orientation for the students as they related to their work experiences. Parents were involved in the planning of a work experience through direct counseling techniques which resulted in longer tenure on jobs for the student. Students who had extreme difficulty in adjustment were able to receive a longer period of orientation in a workshop atmosphere which was staffed by supervisors who were industrially orientated. Traditional materials were adjusted in the class room to a realistic work world curriculum.

The Milwaukee report indicated that:

1. A specialized work training program emphasizing the work habits, work attitudes, adjustment patterns and positive values of work can make mentally retarded individuals employable;
2. A sheltered workshop is an effective resource for placement and/or a long term adjustment program;
3. The mentally retarded can be placed in productive employment;
4. Sub-contract work offers an adequate activity for training in work habits, attitudes, and other adjustment patterns;
5. A follow-up relationship to maintain adjustment on the job and/or to assist in finding a new job is a definite need.

Mentally retarded youth in Texas have participated in similar programs for a number of years. Strickland¹ conducted a survey of 533 students to determine the types of jobs to which E.M.R.'s were assigned during the school year 1962-63. The survey was completed by 436 of the youths for a 81.8% return and provided the information found in Table 1. The results indicated that there was little limitation of opportunity for job training for retarded youth as far as type of jobs was concerned; however, most students were assigned to one or two specific jobs in the field.

Numerically, the majority of grants provided by H.E.W. through local vocational rehabilitation agencies have indicated positive results. However, the report from Orange, New Jersey² raised some real questions concerning the basic design of the cooperative programs. Based on pre and post testing for both the experimental and control groups using chi-square to assess significance, the hypothesis of measurable gains in the school-workshop rehabilitation program was not supported. The second hypothesis, that the special project would result in more

¹Conwell G. Strickland, "Job Training Placement for Retarded Youth," Exceptional Child, XXXI (Oct., 1964), 83-86.

²Frances Geteles et al., A Cooperative Vocational Pattern for In-School Mentally Retarded Youth, Department of Health, Education and Welfare, Project No. RD-1189.

TABLE 1

JOB CLASSIFICATION FOR 436 MENTALLY RETARDED STUDENTS
ASSIGNED TO COOPERATIVE WORK-STUDY
PROGRAMS IN TEXAS

Occupation	%	No.	Top Frequency	No.
HOTEL AND RESTAURANT	20.87	91	Bus Boy	49
			Dishwasher	13
RETAIL TRADE	16.29	71	Grocery Stock % Sk.	41
			Florist Helper	11
AUTO SERVICE	12.62	55	Service Station Helper	26
			Mechanic Helper	16
PERSONAL SERVICE	9.40	41	Beauty Op. Trainee	22
			Barber Trainee	8
DOMESTIC SERVICE	4.82	31	Janitors	17
			Maid-General	12
MEDICAL SERVICE	4.82	21	Hospital-General	16
			Pract. Nurse	2
CONSTRUCTION	4.36	19	Carpenter Helper	3
			General Helpers	3
FURNITURE	2.98	13	Furn. Refin. Appr.	4
			Upholster Helper	6
AGRICULTURE	2.52	11	Farm--General	6
CLEANING, LAUNDRY	2.92	10	Cleaning Helpers	5
			Laundry Helpers	5
MISCELLANEOUS	16.11	73	Leather Worker	11
			Unskilled	7
			Routeman Helper	7
100%		436		

favorable post-project vocational adjustment, was only partially supported by research results. This report had the sophistication of a formal research procedure which may have resulted in negative responses as compared to other reports which suggested that their basic research plan was "action research." This final report made the recommendation that the present program be discontinued since, despite the fact that some positive results were obtained, the program did not sufficiently meet the needs of the population served.

The report of the Minneapolis Public Schools¹ recorded a four year study which served over 500 retarded students in its demonstration project. In addition, it located and interviewed some 400 former special class students who left school in the three years immediately before the project began. The program contained work laboratories where work readiness was established for each student, special teachers who worked with materials developed in a realistic, vocationally related curriculum and a staff of work counselors. The project had research workers and psychologists assigned to the staff for evaluative and survey research. The staff interviewed 385 former students whose Binet Scale scores averaged 76 with a mean

¹Evelyn Deno et al., Retarded Youth: Their School-Rehabilitation Needs, Department of Health, Education and Welfare, Project No. RD-681.

reading level of fourth grade. The drop-out level of these former students was 65%. Less than half had been clients of the local vocational rehabilitation agency. The report suggested that only 23% of these students could be rated as successful when multiple considerations were considered.

By the end of the project, 603 students had received some degree of service from the demonstration unit. Of the 603 students, 34 were in the project, 244 had been returned to school and the remaining 325 were out of school. The 325 out of school cases who had been served by the project represented 122 students who were in competitive employment. The project reported that they had 52% employment rate after eliminating students in sheltered workshops, housewives and the military. This indicated a gain over the 23% employment rate found in the students who had previously left school.

The report made some general statements which paralleled the reports of the other grants: (1) Jobs were generally available to the E.M.R. student and/or counselor, (2) Long term supporting services and follow-up are necessary to a successful placement, (3) The retarded high school graduate was successful in job placement, and (4) The special education curriculum should be developed around the student it serves.

A program developed by a local district without

the advantage of a federal grant was represented by Salinas Union High School District as reported by Muller and Lewis.¹ Experiences necessary for adjustment to work experiences were provided by the following methods and resources:

- | | |
|----------------------|------------------------|
| 1. Class discussions | 7. Application blanks |
| 2. Field trips | 8. Training courses |
| 3. Job notebooks | 9. Aptitude tests |
| 4. Tests | 10. Study guides |
| 5. Self study | 11. Employment posters |
| 6. Community study | 12. Actual work |

A student was placed on his first job for a short period of time to alleviate fears and provide a supportive structure for him as he encountered his first work experience. The program, as reported, had been successful over a three year period with over fifty job offers by the community. Forty-four pupils had work training assignments with all but a few receiving "satisfactory" or better rating. Fifty percent of the pupils had two or more placements.

Work Success Predictions

Most studies suggested that the placement of the mentally retarded high school student on a job was a top

¹Virginia Muller and Mark Lewis, "A Work Program for the Mentally Retarded Students," Journal of Secondary Education, IVI, 75-80, Feb., 1966.

priority objective. Appell, Williams and Fishell¹ in their study attempted to answer these questions:

1. What are some of the variables which differentiate retardates who remain employed six months or more from those who failed in employment?
2. Does descriptive information derived from case histories and other available records discriminate between success and failure?

The WAIS IQ's ranged from 48 to 85 with a mean of 67 for the 41 retardates in the study whose mean age was 23.3. All the retardates had been in training in the Work Training Center in Rochester, New York. Success and failures were compared on the following variables: (1) days in the WTC, (2) days at work, (3) age, (4) IQ, (5) achievement in reading and arithmetic and (6) assembly scores of Purdue Pegboard.

Conclusions reached by this study indicated that the most effective device for selecting those who will be a success from a training situation was a panel composed of professionals and workshop personnel. Of the variables investigated, "days in the WTC" and "days at work" differentiated the study groups. There were no significant differences between the groups on the variables, age, intelligence, achievement scores or fingertip dexterity. It was concluded that a majority of retardates, even though

¹Melville J. Appell, Clarence M. Williams and Kenneth N. Fishell, "Factors in Job Holding Ability," Vocational Guidance Quarterly, XIII (Winter, 64-65), 127-30.

carefully prepared and seemingly eligible for competitive employment, found employment generally in the service occupations.

Gambaro and Schell¹ attempted to answer the question: Can a dependable cutting score be derived on the Porteus Maze test that will separate those individuals who will later be hired from those who will not?

The study included 71 adolescents, 25 girls and 46 boys, between 16 and 19 years of age from the Lansing Special Education Department for whom complete and usable test information was available. The students were in work-training programs of three high schools and had obtained a WISC, WAIS, or Stanford-Binet IQ score between 50 and 90 with a two year lag in their achievement scores. Two instruments were used in the study: 1. Porteus Maze Test (PMT), and 2. Rating Scale of Personal Effectiveness. The Porteus test was administered to all the students who had been divided into two groups: 1. Cutting Score (CS), who were in the work training program during the first year it was fully instituted and 2. Replication Samples (R), who were in the program during its second year. The RSPE was filled out on each student by both his teacher and employer;

¹Salvatore Gambaro and Robert E. Schell, "Prediction of the Employability of Students in a Special Education Work-Training Program Using the Porteus Maze Test and a Rating Scale of Personal Effectiveness," XXVI (Winter, 1966), 1021-29.

however, only the teacher's ratings were scored for use in data analysis. Employers were asked to respond to employability of each of the students. Sex and age were disregarded in all analyses as the researchers used the Fisher probability tests to determine cutting scores. Tables 2 and 3 were developed to show the comparison of the groups.

Results of the investigation indicated that 79% of the students studied were correctly placed. It was possible to determine who among the 31 students in the R sample eventually got hired and who did not. Of the 12 students classified as not employable, none was hired by his respective employer. Of the 19 students classified as employable, 18 were hired later by their respective employer. The researchers suggested in their discussion that although 30 per cent of those who would be considered hireable were screened out by using both scales, this loss might be more than offset by the savings that would accrue from screening out all (100 per cent) of those who presumably would not be hired.

Manual skill and dexterity were considered to be of particular importance for the academically retarded since most experts recognized that the greatest opportunities were found in occupations which require manual

TABLE 2

COMPARISON OF SCORE POSITION AND EMPLOYER'S
JUDGMENT FOR CS STUDENTS

Part	Test	Score ^a Position	Judgment of Employer	
			Employable	Not Employable
A	PMT	Plus	26	8
		Minus	5	6
B	RSPE	Plus	27	1
		Minus	4	8
C	PMT-RSPE	Plus-Plus	22	0
		Minus-Minus	0	5
		Plus-Minus	4	3
		Minus-Plus	5	1

TABLE 3

COMPARISON OF SCORE POSITION AND EMPLOYER'S
JUDGMENT FOR R SUBJECTS

Part	Test	Score ^a Position	Judgment of Employer	
			Employable	Not Employable
A	PMT	Plus	15	4
		Minus	4	8
B	RSPE	Plus	16	0
		Minus	3	12
C	PMT-RSPE	Plus-Plus	13	0
		Minus-Minus	1	8
		Plus-Minus	4	3
		Minus-Plus	5	1

^aPlus indicates above the cutting score, minus below.

skills. Tobias and Gorelick,¹ in developing this concept, found that manipulative skills are related to intelligence. They found that the WAIS is significantly correlated to the Purdue Pegboard with the assembly score correlating higher than the insertion score (Full scale .67, Performance .73, Verbal .43) in 73 retarded subjects.

An attempt was made by Barrett, Relos and Eisele² to explore the possible reason for vocational success when two intellectually equal groups of retardates, one vocationally successful, the other failing, were studied by a comparable means. The two groups were relatively equated as to I.Q., age, educational background and size of group (58 and 57). The determination of success as a criterion was made by supervisors' ratings, good counselor ratings and retention of a job for thirty days or longer in a combined weighted formula. The successful group obtained a mean I.Q. of 64.72 with an intelligence range of 37 to 79. The unsuccessful group achieved a mean I.Q., of 64 with a range from 30 to 79. The investigation was performed in four stages using an oral presentation of twenty items

¹J. Tobias and J. Gorelick, "The Porteus Maze Test and the Appraisal of Retarded Adults," American Journal of Mental Deficiency, LXVI, 1962, 600-606.

²Albert M. Barrett, Ruth Relos and Jack Eisele, "Vocational Success and Attitudes of Mentally Retarded Toward Work and Money," American Journal of Mental Deficiency, LXX (July, 1965), 102-107.

developed from two studies previously validated by Kolstoe¹ and Cohen.²

The important findings in this study suggested that (1) the ability to render a more abstract judgment on a relative level may be a factor in predicting success for the mentally retarded and (2) I.Q. alone may not reflect the true nature of the total mental ability of the retarded. The ability to think abstractly may provide the key to unlocking future predictive doors in finding vocationally successful retardates.

Summary

Generally, the literature which related to the high school mentally retarded student in a work-study program was relatively new and lacked the sophistication characterizing formal research. The identification of the retardate and the inner meaning of the accepted tools which "label" an individual was questioned. Emerging methods of evaluation were sought in all reports, papers and research in a realistic determination of the individuals' ability, response to programing, placement in an occupation, and social adjustment to life.

¹O. P. Kolstoe, "The Employment Evaluation and Training Program," American Journal of Mental Deficiency, LXV (1960), 17-31.

²J. Cohen, "An Analysis of Vocational Failures of Mental Retardates Placed in the Community After a Period of Institutionalization," American Journal of Mental Deficiency, LXV (1960), 371-375.

CHAPTER III

DESCRIPTION OF THE PROJECT

The purpose of this chapter is to describe the original project designed to effect change in the program at Central High School for the E.M.R. students.

Processing of the Student

The E.M.R. students were processed into the project after spending a number of years in special education classes of the Oklahoma City Public Schools. The vocational rehabilitation counselor and school counselor began compiling a file on the students during the year that preceded entrance into the tenth grade or the first year of the project. The teacher-coordinators studied the files in the pre school weeks and began the process of planning training programs for each student. The majority of tenth grade students were placed in classes for a total school program, or six class hours. The tenth year was primarily designated as diagnosis and pre-vocational training. The teacher coordinator and vocational rehabilitation counselor began a series of staff and home visit conferences to orient the student to the project. After considerable

staffing for training, psychological adjustment and occupational placement a determination was made to start the student's work experience training which usually began in the 11th level or 2nd year of the project. The usual follow-up procedures were used during the period of adjustment to job experiences. Students who worked were required to participate a minimum of two clock hours per day in a formal school program. Students usually participated for a year in a pre-vocational training procedure and two years in a work-study programming with complete flexibility in formal school hours and work.

The Curriculum

At the time the project was conceptualized in Central High School, the Oklahoma City secondary school in its special education classes had a traditional curriculum which had little motivational drive for the "borderline" student. A descriptive analysis was made of the changes in curriculum, staff involvement, and community relations within the Central High School district. A study was made of the experimental curriculum with the commonly adopted curriculum, the involvement of the staff and the direct contacts made by the school with the student's home and occupational opportunities.

The State Department of Education provided, through the Curriculum Commission, state curriculum guides

which were outlines developed by classroom teachers of the various disciplines taught in the secondary schools. These guides had been prepared without regard to the various levels of achievement and ability and represented, generally, guides for the "normal" student, leaving the discrimination of levels to the classroom teacher's judgment. Textbooks were selected by the state textbook commission without regard to either levels and/or content as it related directly to students' achievement levels.

The very nature of these guides provided a great challenge for the classroom teacher, as he attempted to relate to the E.M.R. The perceptive educator recognized the need for materials which were usable on a student's actual achievement level and had relevance for his total educational development. New insights available to the educator through the research and experiences of writers in the field of the exceptional child and the disadvantaged student referred to the void of quality materials in this area.

Shostak suggested that schools should provide systematic "trial-run" work experiences in a range of actual employment situations. The principal goal here was to expose students to varied job situations rather than to

¹Arthur B. Shostak and William Gomberg, New Perspectives on Poverty (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965), p. 67.

give actual training for a particular job. The combination of these two concepts became a realistic experience for the students who for various reasons had not been able to identify with the world in which they lived. Students in this project were given new materials in their classrooms which were directly identified with the work world which they entered on a part time bases as a portion of their school experience.

The curriculum ceased to be a "watered-down" version of previously conceived courses of study and became a realistically based program which had meaning for the student as he related to his world. The traditional course titles were changed from English to Communicative Skills; Math to Computational Skills; Biology to Life Science and a variety of appropriate titles as the curriculum attempted to provide rich experiences for the E.M.R. student. The teacher-coordinators working on school time for the purpose of curriculum planning, with other members of the team, began what has been a continuum of revision. This resulted in realistic programing, in the judgment of many professionals associated with the program. The educational experiences were related to lifelike situations as much as possible extending beyond the normal school learning concepts into the occupational, social and home environments.

The language arts program was centered around the

basic skills of communication: reading, listening, writing, thinking and speaking. Computational skills were presented in the form of experiences which were basic to the students' life in planning a budget, buying, understanding of earnings and withholding, measurements, advertising and economics. The area of social studies was concerned with the students' realistic involvement as a citizen using the everyday tools of newspapers, magazines, and visitations to community resources. In the life science area, students were exposed to a study of the human body, life cycle, good health habits, mental health and various other units associated with the development and growth of the individual.

The development of units continued and extended to the years following the project. One of the teacher coordinators, who later transferred to the Oklahoma State Department of Education, developed with a state wide committee a curriculum guide,¹ which included some of the original units of the project. The guide was evolved with suggested units for all major subject areas which were associated with the mentally retarded high school student. Table 4 shows the suggested units of study included in this guide. The teacher coordinator was encouraged to deviate as learning experiences were developed in the classroom. The levels were developed to provide sequential

¹Oklahoma Curriculum Guide for Teachers Coordinators of Educable Mentally Handicapped Students (Oklahoma State Department of Education, 1966).

TABLE 4

UNIT GUIDES FOR EDUCABLE MENTALLY HANDICAPPED STUDENTS AS
DEVELOPED BY THE OKLAHOMA STATE DEPARTMENT OF EDUCATION

Unit No.	Communicative Skills	Grade 10	Grade 11	Grade 12
1	Effective Speaking	X		
2	Listening	X		
3	Parliamentary Procedure			X
4	Group Discussion		X	
5	Appropriate Language		X	
6	Introductions	X		
7	Interviews	X		
8	Telephone	X		
9	Directions		X	
10	Reading Skills	X		
11	Reading for Meaning		X	
12	Reading for Vocations			X
13	Reading for Pleasure			X
14	Newspaper	X		
15	Effective Writing	X		
16	Letter Writing			X
Computational Skills		10	11	12
43	Basic Math	X		
44	Making Change	X		
45	Measurement	X		
46	Personal Budget		X	
47	Wages	X		
48	Social Security			X
49	Banking		X	
50	Buying		X	
51	Interest		X	
52	Taxes			X
Life Science		10	11	12
17	Human Body	X		
18	Life Cycle		X	
19	Good Health	X		
20	Mental Health			X
21	Safety	X		
22	First Aid		X	
23	Disease			X
24	Drug Addiction		X	

TABLE 4--Continued

Unit No.	Life Science (cont'd)	Grade 10	Grade 11	Grade 12
25	Alcohol		X	
26	Hospitals			X
27	Insurance			X
28	Funerals			X
29	The Family	X		
30	Child Care		X	
31	Kitchen and Food		X	
32	You and Your Room	X		
34	Your Friendships		X	
35	You and Education	X		
36	Driver's Education	X		
37	Selecting Clothes		X	
38	Family Mending	X		
39	Grooming	X		
40	Dating	X		
41	Party Etiquette			X
42	Engagement and Marriage			X
Social Studies and Vocations				
53	American History	X		
54	Current Events	X		
55	Citizenship	X		
56	Prejudice		X	
57	Voting			X
58	Politics		X	
59	Law and Courts			X
60	War		X	
61	Atomic Attack			X
62	Transportation	X		
63	Community Resources	X		
64	Conservation		X	
65	Leisure Time			X
66	Responsibility		X	
67	Job	X		
68	Vocational Rehabilitation	X		
69	Application Blanks	X		
70	Work Record	X		
71	References	X		
72	You and your Job	X		
73	Work Attitude		X	
74	Employer's Needs		X	

classroom experiences as the supervised work experiences progressed. The curriculum developers were not concerned with college entrance requirements but were centering their efforts around the provision of challenging experiences for these mentally retarded students. The State Department of Education approved for the mentally handicapped student in the 10, 11 and 12 levels a specialized program which met numerically the number of units required of all students for high school graduation. The proposed classroom programing attempted to meet the individual needs of the E.M.R. for the first time on a state-wide basis. The program of the special project provided students with a work oriented experience in the classroom which served the following purposes:

1. Provided an initial orientation to a work experience.
2. Developed increased vocational concepts and understanding.
3. Provided personal adjustment training in the areas of work attitudes and habits, hygiene, grooming, adjustment to peers and employers, accepting job supervision and improving work tolerance to an acceptable level.
4. Created an experience impact with the student in the classroom which provided a bridge between school and work.

Team Approach

A concept was developed from the inception of the project centered around the total involvement of personnel.

The principal of Central High School was requested by the school administration to become involved with personnel of the State Vocational Rehabilitation Agency for the purpose of programming for mentally retarded high school students.

A team composed of three persons from vocational rehabilitation met with the principal, a counselor and a consultant in special education from the administrative offices of the Oklahoma City Public Schools. This team after adequate discussion arrived at basic decisions affecting the project. An interesting organizational aspect was the absence of an administrator as the principal and director, who was a vocational rehabilitation counselor, involved themselves in all team efforts. The major team efforts centered around two major responsibilities: 1. curriculum development, 2. staffing.

The team met on a regular basis both during and after school time with open meetings for every person associated with the project, including staff members in administration and guidance. The teacher-coordinators, who carried responsibilities in the classroom, home visitation, job placement and follow-up were always present for the team meetings. A school counselor, the principal, and the vocational rehabilitation counselor were members of the team at 80% level of attendance. The curriculum team was supplemented by the regular attendance of the school's materials' center director whose responsibility

was to provide and develop new materials appropriate to the newly developed concepts. The staffing team was supplemented by the school psychologist whose major responsibility was to develop new concepts of understanding and group dynamics including the personal involvement of team members.

Staffing

The formalization of basic concepts into a program which would demonstrate basic democratic values was one of the concerns of the initial planning group. The informal research that members presented, indicated that planning should involve both staff personnel and students in a relatively new concept, "group counseling." These involvements strengthened the personnel of the project by providing direct in-service procedures when they became members of "group counseling."

The staffing group was open to all professional personnel including administrators, counselors, a teacher coordinator, a vocational rehabilitation counselor and a special education consultant. The group leader was the school psychologist who served as the catalyst, encouraging staff members to frankly verbalize their reactions to the ongoing program. Initially the group felt the necessity of communication as its primary function but later broadened its conceptualization to include a reciprocal process which

required the open examination of all feelings. The resultant change in the behavioral attitudes of staff members was later reflected in their working procedures.

Structure of the staffing group was flexible and changed several times during the project years. The school counselor was asked to prepare a case history of students, who had been referred by a teacher coordinator, with a problem which had reached the critical stage. These problems were reconstructed by the teacher coordinator as a part of the case history presented by the counselor. The problems were not necessarily behavioral in structure but included a broad range of concerns from the introverted to the extroverted personality. The group interacted on causation and possible solutions for the staffed student. Individual members of the group often became personally involved in possible causation of the problem which proved to be extremely "threatening" to some members of the group.

The school psychologist, who basically had the confidence of the group, was able to demonstrate the techniques of group counseling using staffing procedures. The change in group structure included the removal of the principal, who had supported the total process by request of the group. Each member of the group learned to accept the role of a group member on an equal basis without reference to status position and/or title. Attendance at

staffings, although voluntary, was extremely high with excellent participation by each staff member.

The staffing of the students became secondary as the positive resulting behavior of the staff member became productive in relating to students. Glasser and Iverson,¹ who had been developing techniques with delinquent groups believe that large group counseling techniques could be related to problems of any natural group such as a school classroom. These basic techniques were used by the teacher-coordinators in the classroom to resolve problems inherent in students from distressed areas, who had been identified as E.M.R.s. The teachers who had been involved directly in counseling, were now asked to use these techniques in a classroom. Difficulties were many in this process as teachers encouraged leadership to emerge from the group. The de-centralization of authority in the classroom was necessary and meaningful to students as they sought answers to personal problems; however, it would have been negated by a return to formal counseling techniques.

Glasser and Iverson,² whose manual appeared, after some of the basic techniques suggested by them had been used in the project, made these statements which are significant tools used in resolving students problems.

¹William Glasser and Norman Iverson, Large Group Counseling (Los Angeles: Reality Press, 1966).

²Ibid., 72.

Teachers need to have a dual role, both as educational leaders and also as discussion leaders. Leading meaningful discussions about their school participation is a basic and important role. We will never solve the problems of children on a one-to-one basis with school counselors. We will never solve problems through punishment, which separates the child from his peers and from the rest of the class. We must use the classroom as a natural social setting through which the child can learn to fulfill his needs; to gain self worth, respect, and even to gain love for what he can do that both he and the class feels is worthwhile.

Occupational Experiences

One of the major considerations in the initial planning of the project was the assimilation of a realistic work activity into the total educational experience of the E.M.R. student. The process of training for a specific job was conceived to be proper planning as the older concept of on-the-job and/or apprentice experiences was explored. In the early conceptualization of work training, the teacher-coordinator and vocational rehabilitation counselor attempted to develop those concepts of employment with some minor success. In the realistic evaluation of the E.M.R. they found that they did not have the base for substantive work. The resultant consequence was the failure of the students to maintain themselves on jobs. As a direct result of this confrontation with reality, the project team started an adjustment in concept and direction. The adoption of a new objective concept "job conditioning" was determined by the project team as realistically correct

in their planning. As a result of this concept the team began to work with attitudes, personal traits, simple technical tools of employment, and social concepts which were at the base of the students inability to maintain a job.

The teacher-coordinators determined that most jobs available to the E.M.R. students were service jobs in which the employer would do the simple basic training but needed assistance in the periphery traits of the job. A majority of the research substantiated this concept as exemplified by the Milwaukee¹ study which stated:

A specialized work training program emphasizing the work habits, work attitudes, adjustment patterns and positive values of work can make mentally retarded individuals employable.

The classroom became the major source of assimilation for the experiences of the students, both positive and negative, as they began to relate themselves to their work. Problems, which students began to feel as obstacles to their successful employment, were related either to the class or to the teacher-coordinator for possible solutions. The teacher-coordinator within the dictates of both good judgment and proper employer relationships sometimes attempted serious abridgement of communications between

¹An Evaluation Study and Demonstration Work Experience for the Mentally Retarded During their Last Year in Public Schools, United States Department of Health, Education and Welfare (Project 404), Milwaukee, Wisconsin, p. 49.

the students and their supervisors. Problems occurring between the students and their work peer groups were used in the classroom for realistic teaching situations which resulted in solutions of problems.

The vocational rehabilitation counselor and teacher-coordinators worked as a team to provide work experiences for the students in the project and determined what supportive training was needed in individual cases. Financial arrangements were made with individual agencies to do specific training. Goodwill Industries trained several students in their sheltered workshop setting thus providing the bridge between employment in the labor market and the classroom when an individual student lacked the confidence for employability. Private employers were contacted in some cases to employ students for a period of adjustment and were reimbursed by vocational rehabilitation for training students. The training was basically for a short period and usually resulted in full time employment for the student trainee.

Tables 5 and 6 provide a summary according to the final report¹ of the project of jobs held and an employer's evaluation of 59 students reported by the vocational

¹A Coordinated Program of Rehabilitation Services Leading to Permanent Job Placement for Disabled High School Students (Washington, D.C.: Vocational Division of Department of Health, Education and Welfare Grant No. RD-771, July, 1964).

TABLE 5

JOB'S HELD BY MENTALLY RETARDED REHABILITANTS AS REPORTED IN
FINAL REPORT FOR 59 STUDENTS WHOSE CASES WERE CLOSED

Job Titles	No.	Job Titles	No.
Baker's Assistant	3	Maid	2
Beautician	1	Maintenance Man	2
Bellman	1	Meat Wrapper	1
Brick Mason Assistant	1	Mechanic's Assist.	2
Bus Boy	5	Nurses Aide	1
Concession Clerk	1	Roughneck	1
Constructive Laborer	1	Sales Clerk	3
Delivery Boy	1	Salesman	1
Dishwasher	1	Trash Man	1
Fry Cook	1	Unpaid Family Worker	4
Grocery Clerk	1	Upholsterer	1
Home Maker	14	Waitress	6

TABLE 6

EMPLOYERS' EVALUATIONS OF STUDENTS REPORTED AS REHABILITATED
IN FINAL REPORT FOR 63 STUDENTS WHOSE CASES WERE CLOSED

Trait	Poor Average		Above Average	Excellent
Gets along well with others	1	20	15	2
Dependable		23	15	3
Punctual	1	22	12	3
Grooming for the job*	2	23	12	
Able to accept criticism	4	25	8	1
Shows initiative	5	20	10	3
Has respect for authority	1	24	11	2
Manual dexterity*	1	25	11	
Ability to adjust to change and pressure*	4	24	9	
Toleration for distraction*	5	24	8	
Ability to work inde- pendently	1	17	20	
Cheerfulness	2	24	11	1

*Traits not evaluated on every client.

rehabilitation counselor as rehabilitated with the case "closed." The report indicated the mean weekly earnings were \$42.00 for those students. An evaluation of employers was completed for 38 students; 12 had moved away but at last report were working; 5 were married and not working and the remaining 8 could not be located, of the original 63 closures studied.

A counselor was assigned as a full time staff person to the project with normal resources available to him to provide complete services to all students in the project. Vocational Rehabilitation normally provided services of counseling, diagnosis, physical restoration, training and maintenance for its clients in the rehabilitative process. The Oklahoma City Public Schools provided training through its special education services with a few exceptional cases of supplemental training which permitted vocational rehabilitation to concentrate its services in the other areas. The identification of students for the program was primarily the responsibility of the school; however, some assistance for psychological services for students with emotional problems was provided from vocational rehabilitation resources.

The total approach was the "team concept" for the vocational rehabilitation counselor who participated in all phases of the project providing services and other resources when the needs of students were not met with

available resources. A study¹ was made of the total cost of services provided for 191 rehabilitants. These monies expended were \$11,674 or an overall average of \$133.00 per student. Tables 7 and 8 show the breakdown of these costs into services and type of disability.

In the project years, an arrangement was made with the Oklahoma City Public Schools to provide extra services through the personnel assigned to the project on an extra time basis. These staff members were asked to assume some responsibility after the normal school hours to supplement the program in its formative stages of development. The finances for these services were provided as a part of a grant from Vocational Rehabilitation which supplemented the salaries of the teacher coordinators, psychologists, materials center personnel and a school counselor.

¹Ibid.

TABLE 7

SERVICES PURCHASED FOR 87 MENTALLY RETARDED REHABILITANTS

Services	Number Receiving	Per Cent of Total Number
Diagnosis	87	100
Surgery and Treatment	11	13
Prosthetic Treatment	15	17
Hospitalization	2	2
Training and Materials	46	52
Maintenance and Transportation	24	27
Tools, Equipment, and License	6	7

TABLE 8

SERVICES PURCHASED FOR 87 MENTALLY RETARDED
REHABILITANTS WITH A PRIMARY DISABILITY

Services	Mentally Retarded		Other	
	Number Receiv- ing	Per Cent Receiv- ing	Number Receiv- ing	Per Cent Receiv- ing
Diagnosis	58	98	29	100
Surgery and Treatment	5	8	6	21
Prosthetic Appliances	8	14	7	24
Hospitalization			2	7
Training and Mate- rials	28	47	18	62
Maintenance and Transportation	15	25	9	31
Tools, Equipment, and License	1	2	5	17

*This group includes students whose mental retardation was classified as the secondary disability.

CHAPTER IV

DESIGN AND METHODOLOGY OF THE STUDY

The purpose of this chapter is to present:

(1) The basic plan for this dissertation; (2) A description of data collection; (3) A description of the instrument; and (4) A discussion of statistical procedures.

Basic Plan

The basic plan was to obtain data on ninety subjects in three groups, one control and two experimental, in order to investigate and attempt to determine whether they differ with respect to socio/occupational adjustment. Each group contained thirty persons who, within the availability of sample, were randomized. The experimental groups consisted of Central High School students who had: (1) participated in the program, failed to complete the total offerings and dropped out of school, and (2) completed the full three year program and received a "high school diploma." The control group consisted of students in high schools with identical socio-economic backgrounds who participated in regular special education programs. The criterion for the selection was done on

the basis of these variables: (1) Identified as E.M.R.'s by use of individual test scores and validated by the State Department of Education, (2) male, (3) home environment deprived, (4) attended classes in a special education class of the Oklahoma City Public Schools, (5) chronological ages of students between 18 and 23 and (6) ratio of Negro and Caucasian students were the same in all groups.

The design for the study was neither truly experimental nor quasi-experimental but can be more properly defined as ex post facto design where the experimental and control groups were compared on post test success data. The danger of a theoretically less scientific than a true experimental design is sometimes necessary and desirable in the attempted solutions of educational problems where control has not been established. Kerlinger¹ in warning of the danger of improper interpretation of this type research points out its value:

Even if we would avoid ex post facto research, we cannot. It can even be said that ex post facto research is more important than experimental research. This is, of course, not a methodological observation. It means, rather, that the most important social, scientific and educational research problems do not lend themselves to experimentation, although many of them do lend themselves to controlled inquiry of the ex post facto design. If a tally of sound and important studies in psychology, sociology, and education were made, it is likely that ex post facto studies would outnumber and outrank experimental studies.

¹Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1965), p. 22.

Data Collection

The determination of subjects used by the study was controlled largely by the availability of former students for interview. A list was compiled from the files of the vocational rehabilitation counselor for all students who had been in the Central High School project. A similar list was obtained from the Special Education Division of the Oklahoma State Department of Education for students who had been in regular programs of special education at Douglas and Capitol Hill High Schools at the same chronological time.

An objective in this experimental design was to ensure that the results were attributed within the limits of error to the treatment variable. Situations arise in which variables are uncontrolled because of practical limitations associated with a study. The normal random procedures for selection of subjects fit this condition. A statistical, rather than an experimental method was used to control and adjust for the effects of this variable, and permitted, thereby, a valid evaluation of the outcome of the experiment. The students in the study were selected basically upon the teacher-coordinator's ability to locate the students for the control group and random sampling procedures were used based on available subjects in the two experimental groups. The basic design for the subjects in the study was determined to be 30

students for each group with a ratio of 18 Negro students and 12 Caucasian students. The ratio of Negro to Caucasian students conformed to the composition of the experimental group.

The Instrument

The Questionnaire administered by the teacher-coordinator in this study was constructed to evaluate after-training success for young adult male retardates. The authors of The Texas Screening Battery for Subnormals headed by Dr. J. R. Peck¹ indicated that these tests were not the ultimate in test construction; however, they believed at the time of their development (1964) that they were the most valid set of instruments adapted or developed for evaluation in this area. For the purpose of this study, it was determined that the instrument met the conditions circumscribed in the determination of differences between groups.

The test battery was standardized and validated on 125 young adult retardates, ages 18 through 26, IQ's 50 to 75. The random sample was comprised of 25 mentally retarded youths drawn from each of the following groups: (1) Graduates of Marbridge Foundation, (2) Graduates of State School Habilitation Classes, (3) Graduates of the

¹J. R. Peck, Will Beth Stephens and D. K. Fooshee, The Texas Screening Battery for Subnormals (Austin, Texas, 1804 Raleigh, 1964).

South Texas Habilitation Center's vocational training program, (4) Graduates of special education classes of public high schools in Texas communities and (5) a control group the members of which had received no vocational training through programs for the mentally retarded.

An agreement was determined by a panel of experts on three aspects of success--personal, sociocivic and vocational and their respective interrelated aspects. The variables included in the criterion were determined by the pooling of judgments by the panel who were all experts in the field of mental retardation. The variables were incorporated into questionnaires for use in structured interviews with (1) the subject, (2) the subject's parents, and (3) the subject's job supervisor. The interviewer entered on a five point scale, ratings on the 60 items covered in the structured interview. Data were collected on 20 numerical or continuous variables. Subject's criterion scores were determined independently of his scores on the predictor instruments.

As in the predictor variables the frequency distribution of each point scale and continuous variable was analyzed. The continuous variables were then transformed to stanine values, a method which served to standardize scores. The distribution of both the point scale and the linearly transformed variables were

normalized by means of the T-scale of Guilford.¹ These descriptive statistics for criterion variables of the items used in the questionnaire of this study are contained in Table 9. Through Pearson Product-Moment correlation techniques, relationships were determined between the T-scores for the 125 subjects on the 78 point scale and continuous predictor variables and T-scores on the 80 point scale and continuous criterion variables. Both dichotomous predictor and dichotomous criterion variables were included in the study. The point-biserial correlation techniques of Guilford was used to determine the relationship between the dichotomous variables, T-scores and the criterion variables. The concurrent validity of variables comprised of scores or subscores was evaluated by determining the relationship of scores derived from the predictor variables to scores on measures of concurrent criterion performance. Data concerning construct validity were organized by factor analysis. Loading a measure had on a predictor factor indicated the degree to which that instrument participated in defining the construct or factor.

Sixteen instruments plus interview schedules designed to gain the information selected by the panel of experts were used in the process of validating the

¹J. P. Guilford, Fundamental Statistics in Psychology and Education (New York: McGraw-Hill, 1956).

TABLE 9

DESCRIPTIVE STATISTICS FOR FREQUENCY DISTRIBUTIONS
OF CRITERION VARIABLES

Criterion Variable	Mean	Standard Deviation	Critical Skewness	Ratio for Kurtosis
1. Residence	1.97	0.83	6.43	8.10
4. Spare Time Activities	3.93	0.54	-3.05	5.26
7. Music Enjoyment	4.59	0.54	-6.64	4.25
11. Law Conformity	3.96	1.28	-4.18	-1.48
12. Driver's License	2.82	1.40	3.29	-2.58
15. Improved Finan- cial State	3.39	1.46	-1.56	-3.05
16. Purchases Own Clothes	4.02	1.45	-5.53	-0.16
20. Job Expectancy	2.72	1.48	1.01	-3.03
21. Regard for Supervisor	4.22	0.84	-7.23	8.41
22. Compatible Employees	4.36	0.86	-7.72	7.50
24. Realistic Goals	3.84	1.04	-3.73	0.46
25. Job in Training Area	2.44	1.35	2.38	-2.17
26. Advancement Pos- sibility	2.54	1.18	0.75	-2.08
38. Finances from Parents	3.26	1.64	-0.50	-3.87
40. Parents Regard as Mature	3.89	1.10	-3.80	-0.25

battery of instruments including the questionnaire used in this study, Questionnaire for Subject Form 2. The instruments, used to screen the retardates in the study, were posited as being measures of intellectual, perceptual-motor, family status and personality characteristics.

The questionnaire contained 44 items which included five point scales, questions which required numerical answers, enumeration response items, simple yes, no responses and judgement responses. The questionnaire has no cumulative score and lends itself to individual item analysis of the criterion variables. The instrument's authors¹ emphasized that "the instruments were not predictor instruments, i.e., not instruments for use in evaluating subsequent personal, socio-civic and vocational success."

The basic purpose of the instrument was to evaluate either on-the-job training or after training success as a criterion and not as a predictor, which lent itself to the study. The investigation into significant differences to be found between groups which had been exposed to a special training effort as opposed to no training effort required items which were validated. The validation met criterion requirements: (1) Scores were compared to selective criteria, (2) Comparison was made to other measures, (3) Items were logically compared

¹Ibid., p. 6.

to intended measure, and (4) Items were experimentally tested. The criterion items had predictive, concurrent, content and construct validity.

The instrument was studied and a research design was developed which included fifteen, 5 point scale items, used to make a statistical study of difference of the groups with all other items in the study used to make comparative evaluations. The use of the 5 point scale items was selected as the data for statistical treatment because of its useableness and the required judgement by the interviewer in the interpretation of the value placed in the response.

The fifteen 5 point scale items were highly selected in that they included 71 of the 78 predictor items in validation procedures. Appendix E was developed to include the fifteen criterion items used in the study and the significant correlations with predictor items developed and validated by use of other instruments.

Statistical Procedure

The experimental design of the study was a factorial ANOVA experiment of unequal cell frequencies. The determination to use this design was made on the basis of the availability of subjects subsequent to the securing of data, and the advantage gained by use of the observed F ratio to test for variations in the sets. The observations within cells will be of the same

magnitude using a 2 by 3 factorial experiment in analyzing unweighted means.

	^{b₁} Graduates	^{b₂} Drop-outs	^{b₃} Control
^{a₁} Negro	n ₁₈	n ₁₈	n ₁₈
^{a₂} Caucasian	n ₁₂	n ₁₂	n ₁₂

Unequal n's within the cells were placed in the same order for computational purposes by use of a harmonic mean.¹ The $\bar{n}_h$ (harmonic mean) was computed by this formula.

$$\bar{n}_h = \frac{6 \text{ (number of cells)}}{1/18 + 1/18 + 1/18 + 1/12 + 1/12 + 1/12}$$

In the computation of main effects and interactions each cell had $\bar{n}_h$ observations.

Three steps were involved in the evaluation of the data into a workable analysis: (1) Computation of the S.D. from raw scores, (2) Computation of the F-ratio, and (3) Computation of the t-ratio analysis of variance.

Computation of the S.D.'s (Standard Deviation) for each of the cell groups determined the variability within and among the distributed scores. This procedure provided the assurance that the study could produce differences among the groups. The standard deviations among the paired group (graduates, drop-outs, control) were

¹B. J. Winer, Statistical Principles in Experimental Design (New York: McGraw-Hill, 1962), p. 223.

assumed to have significant relationships by sight examination and indicated that further investigation was feasible.

The computation of the F ratio, in the analysis of variance, provided a statistical method that analyzed the independent and interactive effects of independent variables on a dependent variable. A significant F ratio indicated that there were no chance variations among means in the lists of sets. The variances from within the sets were approximately equal if the assumption was made that an accurate estimation of total population was present. The absence of a significant difference from an F ratio would have raised suspicion on significant differences between specific comparisons; thereby, raising the question of the score representing only a chance probability. The F ratio, therefore, determined the rejection or acceptance of the null hypotheses. The two independent variance estimates were estimates of the same population if the null hypotheses were accepted. If the two independent variance estimates were significantly different, then the null hypotheses were rejected and the experimental design permitted investigation of specific hypotheses by use of the t ratio.

A significant F indicated that there were no chance variations among the means in the list of sets. It was not known which ones were significantly different.

It was determined, however, that they could not arise from a homogeneous sample. The t test assumed the equality of variances in the populations from which samples were drawn and attempted to reflect the differences between the control and experimental groups of the study. These differences were determined by ratios between sample means in determining the errors in sampling.

Statistical procedures used in the study answered two primary questions: (1) The question of statistical significance of differences in the socio/occupational adjustment of the E.M.R.s between two experimental groups and one control group and (2) the question of significance of differences between races as they related to the socio/occupational adjustments of the three groups of Educable Mentally Retarded former students.

CHAPTER V

ANALYSIS OF DATA

The study was primarily concerned with determining if the socio/occupational adjustments were significantly different for students who had completed a specially designed high school work-study program as compared to those completing a regular special education program. The measures of socio/occupational adjustment contained in 15 items of the validated Texas Screening Battery for Subnormals¹ consisted of the scores made by the subjects responses to questions of the interviewers. The dependent variables were the races (Caucasian and Negro) which were structured into the research design.

A secondary concern of the study involved determining if the training had greater significance for the Negro or Caucasian students. Research findings indicated some concern for students of minority races who were classified as mentally retarded on the basis of tests which were of questionable validity.

¹J. R. Peck, et al., The Texas Screening Battery for Subnormals (Austin, Texas: H. E. W. Publications, 1964).

Composition of the Study Sample

Ninety former students of the Oklahoma City Public Schools, who by normal classification procedures had been identified as E.M.R. students, comprised the sample of the study. Questionnaire for Subject (on success)-Form 2¹ from a battery developed by Peck, Stevens and Fooshee was administered during a six week period between March 1, 1968 through April 15, 1968. The sample consisted of 54 Negro and 36 Caucasian E.M.R. former students whose I.Q.'s ranged between 50 and 78.

The overall average E.M.R.'s age in the study was 20.3 years. The range of ages was 18 years 5 months to 23 years 5 months. The mean age of the Negro E.M.R.s was 19 years 11 months and 20 years 3 months for the Caucasian sample. The mean I.Q. for the total sample was 70.6 with a mean I.Q. for the Negro group of 71.03 and 70.17 for the Caucasian group. Individual ages and I.Q.'s are reported in Table 10 for the total study population.

The control group which included students of the same socio/economic background included 3 students from the Caucasian sample and 10 from the Negro who completed a high school program. By design, the drop-out experimental group consisted of those students who failed to graduate from high school. The graduate experimental group consisted of all high school finishers. The total number of high school graduates was 43 of the total sample

¹Ibid.

TABLE 10
INDIVIDUAL I.Q. AND CHRONOLOGICAL AGE FOR NINETY E.M.R.
FORMER STUDENTS BY RACE

EXPERIMENTAL															
CONTROL				DROP-OUT				GRADUATES							
	Negro		Caucasian			Negro		Caucasian			Negro		Caucasian		
	IQ	Age	IQ	Age		IQ	Age	IQ	Age		IQ	Age	IQ	Age	
1.	72	20.0	77	19-6	71	18-6	72	18-6		61	18-9	50	18-11		
2.	72	19-7	71	20-8	74	18-5	74	18-7		73	19	64	19-6		
3.	65	21-1	76	20-2	70	18-8	64	19-2		75	19-9	77	20-3		
4.	78	19-8	76	20-9	70	18-2	73	19-2		75	19-9	77	20-3		
5.	78	19-11	72	20-8	67	18-11	77	19-9		74	19-8	67	20-5		
6.	73	19-11	75	20-3	72	19-10	74	20		74	20-1	77	20-3		
7.	75	19-11	72	21-3	73	19-5	76	20-5		69	20-3	65	21		
8.	76	18-3	54	21-3	78	19-6	67	20		66	21-5	72	21-3		
9.	68	19-2	72	21-3	62	19-7	54	20-6		70	20-3	71	21		
10.	67	18-10	70	21-10	27	20-1	78	20		71	21-2	73	21-6		
11.	77	19-8	70	21-10	71	20-6	65	21		71	21-1	66	22-4		
12.	78	20-8	75	22-3	67	20-11	78	22-3		78	21-6	62	22-2		
13.	75	19-5			78	20				74	22-6				
14.	58	20-1			71	21				66	22-6				
15.	63	20-6			75	21-7				78	22-5				
16.	64	21-3			76	22-6				65	22				
17.	62	20-5			78	22-7				72	22-5				
18.	66	20-1			74	22-5				76	23-5				
Mean:	70.3	19-11	71.6	20-11	71.3	19-1	71	19-11		71.5	20-11	67.9	20-8		
				Mean I.Q.								Mean Age			
Negro				71.03								19 years 11 months			
Caucasian				70.17								20 years 6 months			
Total				70.6								20 years 3 months			
Range				50-78								18 years 5 months to 23 years 5 months			

of 90, who were in the graduate and control groups. In the two groups, drop-out and control, there was a total of 47 E.M.R.s who failed to complete high school.

The 15 five-point scales included in the statistical study were developed on a continuum from (1) to (5) with the higher scored items representing the positive concept and the lower scores the negative concept of socio/occupational adjustment. The maximum possible score was 90 for each of the E.M.R.s included in the study. The scores ranged from 32 to 71 with a mean of 54.04. Table 11 shows the mean scores of the sub groups along with the mean scores of the three study groups.

TABLE 11
SOCIO/OCCUPATIONAL MEAN SCORES FOR STUDY
GROUPS AND SUBGROUPS

Group	N	Graduates	Drop-out	Control	Total
Caucasian	36	63.72	45.94	59.33	56.33
Negro	54	56.42	47.67	51.17	51.75
Total	90	60.07	46.80	35.25	54.04

Testing the Hypotheses

Analysis of variance was the statistical procedure used to test the hypotheses. This statistical design was chosen because it yields variation of group means from the total or grand mean of all groups as well as the average variability of the scores within each

group. This provided the possibility of using interaction into the analysis.

Significance of the differences was tested by use of the F test.

For computational purposes the data was cast in terms of a 2 by 3 factorial experiment with unequal cell frequencies. The primary purpose of this design was to provide an observation of the factorial effects as well as the experimental error. This design assumed that the factorial effects as well as the experimental error were additive to the purposes of the study.

Table 12 shows the analysis of variance data pertaining to the socio/occupational scores as they relate to the dependent variables of race.

TABLE 12

ANALYSIS OF VARIANCE FOR UNEQUAL NORMS BETWEEN RACE,
EXPERIMENTAL GROUPS AND INTERACTION OF BOTH FACTORS

Source	SS	df	MS	F	p
Race	452.76	1	452.76	6.48**	.01
Experimental Groups	2614.69	2	1307.34	18.72**	.01
Race by Experimental Groups	416.59	2	208.30	2.98	NS
Within Cell	5867.81	84	69.85		

**Significant at the .01 level.

When comparing the data it was found that two F values were significant when consulting the F table for significance. These were both the independent variables and the dependent variables. When both variables were computed for interaction, significance was not found at either the .05 or .01 level; however, the score was approaching significance. The computational design for the data found in Table 12 is found in Appendix B. Uneven n's within the sub groups was neutralized by a formula for a harmonic mean suggested by Winer¹ which is computed in Appendix C.

On the basis of the F scores significance was found between the races (Negro and Caucasian) and the experimental groups (graduates, drop-outs and control). Since the data analysis revealed significant variations in the independent scores of the experimental group, the data was further analyzed to determine the direction of the relationship.

The use of the t test for significance of differences between scores was used to determine this direction. Table 13 gives an analysis of the computational determinates of the t score.

¹B. J. Winer, Statistical Principles in Experimental Design (New York: McGraw-Hill, 1962, pp. 222-224.

TABLE 13

DATA USED IN COMPUTATION TO DETERMINE SIGNIFICANCE ON
THE t TEST BETWEEN EXPERIMENTAL GROUPS

	N	X	$\bar{X}^2$	x^2	$\bar{X}$
Control	30	1824	111838	938.80	60.80
Drop-out	30	1399	67960	2719.97	46.63
Graduates	30	1682	96687	2382.87	56.06

The computation for determining significant differences between the experimental groups using the t test is shown in Appendix D.

The Hypotheses

The study contained three null hypotheses:

1. H_{01} There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who have completed a work study school program and a group who participated in a regular school program when race was statistically controlled.

An examination of the data revealed that there was significance between races and between groups on the F test; consequently, H_{01} was rejected and an additional analysis was made by the t test. On the basis of statistical evaluation, significance, (t) was found to be 2.43 at the .05 level.

2. H_{02} There were no significant differences in socio/occupational scores made by a group of E.M.R.s who completed an experimental work-study school program and a group who failed to complete the program when race was statistically controlled.

An examination of the data showed that there was significant difference between races and between groups on the F test. H_{02} was rejected and analysis was made on the t test. On the basis of the statistical evaluation a t score of 6.91 at the .01 level was established as significant.

3. H_{03} There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who failed to complete an experimental work-study program and a group who participated in a regular school program when race was statistically controlled.

An examination of the data indicated that there was significance between races and between groups on the F test. H_{03} was therefore rejected and an analysis was made by the t test. On the basis of the evaluation of the computation a t score of 3.89 was established with an .01 level of significance.

On the basis of an analysis of the statistical data, all three null hypotheses were rejected. A significant difference was found on the socio/occupational scores in which Negroes scored higher than Caucasians, and students who completed the experimental programs (graduates) scored higher than the control group. The control group in turn scored significantly higher on their scores than the drop-out group.

Related Sample Analysis

As a portion of the interviewing process associated with the study a number of items in the questionnaire were not subjected to formal statistical analysis. Some of these items were important to the total evaluation of the groups within the study. Table 14 shows the work continuity of the three groups involved in the study and Table 15 compares the number of hours that students were employed. The questionnaire also contained items which provided some information on the types of employment that mentally retarded work students performed as reported in Table 16.

TABLE 14

MEAN OF MONTHS ON JOB AS REPORTED BY 90 MENTALLY
RETARDED STUDENTS OF OKLAHOMA CITY PUBLIC
SCHOOLS BY RACE AND RESEARCH GROUP

	<u>Control</u>		<u>Drop-outs</u>		<u>Graduates</u>	
	Negro	Caucasian	Negro	Caucasian	Negro	Caucasian
Mean	7.8	6.5	7.2	8.9	20.18	9.15
N	18	12	18	12	18	12

TABLE 15

MEAN HOURS OF EMPLOYMENT PER WEEK OF WORKING STUDENTS
BY 90 MENTALLY RETARDED STUDENTS OF THE OKLAHOMA
CITY PUBLIC SCHOOLS BY RACE AND RESEARCH GROUP

	Control		Drop-outs		Graduates	
	Negro	Cau- casian	Negro	Cau- casian	Negro	Cau- casian
Mean	41.2	27.67	21.33	24.46	37.00	32.67
Number Employed	15	8	8	6	15	9
Unemployed	3	4	10	6	3	3
N	18	12	18	12	18	12

TABLE 16

TYPES OF EMPLOYMENT BY RACE AND RESEARCH GROUP AS
REPORTED BY 90 MENTALLY RETARDED FORMER STUDENTS
OF OKLAHOMA CITY PUBLIC SCHOOLS

Type of Employment	Control		Drop-outs		Graduates	
	Negro	Cau- casian	Negro	Cau- casian	Negro	Cau- casian
Skilled	3	0	1	0	2	0
Semi-skilled	5	0	4	1	12	4
Unskilled	9	10	12	10	4	7
No Response	1	2	1	1	0	1
N	18	12	18	12	18	12

The number of months between the time that students completed their school either as a drop-out or as a graduate had some interesting implications. The Negro student who graduated and/or completed his training in the control group found work almost 2½ months earlier than the trained student from the experimental group. The reverse of this process was indicated by the Caucasian student in the control group who took three months longer to find employment than the experimentally trained white student. Table 17 also shows that drop-outs find employment in a shorter span of time than any other group with the exception of the experimentally trained Caucasian student. The implication of this data is that students may drop out because a job is readily available; however, the type of employment may be menial.

TABLE 17

MEAN OF MONTHS BETWEEN TRAINING AND/OR SCHOOL TERMINATION AS REPORTED BY 90 MENTALLY RETARDED STUDENTS OF THE OKLAHOMA CITY PUBLIC SCHOOLS BY RACE AND RESEARCH GROUP

	Control		Drop-outs		Graduates	
	Negro	Caucasian	Negro	Caucasian	Negro	Caucasian
Mean	1.11	3.55	.91	.80	3.78	0
N	18	12	18	12	18	12

An important function of any training program for the mentally retarded is teaching financial responsibility. Informal data (Table 18) secured by the questionnaire indicated the amount of savings and debts, annual earnings and credit buying.

TABLE 18

MEAN FINANCIAL FACTORS BY GROUPS FOR 90 MENTALLY RETARDED STUDENTS AS REPORTED ON AN INTERVIEW QUESTIONNAIRE

	Control		Drop-out		Graduate	
	Negro	Caucasian	Negro	Caucasian	Negro	Caucasian
Savings	95.89	27.67	34.44	14.17	118.06	300.42
Debts	80.56	93.75	142.77	133.83	352.11	56.25
Worth	+15.33	-66.08	-108.33	-119.66	-234.05	+244.17
Annual Earnings	22.2.46	1674.45	1636.37	1554.54	3338.33	2011.33

Church membership was reported by 79% of the total group with 90% in the control group, 77% among the drop-outs and with only 70% membership among the graduates. The question on voting had little significance because of the limited number of legal voters. The response to the question concerning hours per week spent in civic organizations was not significant because of the lack of responses. Participation was indicated by seven of the possible ninety participants in the study for an average of two and one-half hours per week. There were 20 married students.

in the study and one engagement. Six students in the control group, seven in the drop-out, and seven among the graduate were married. One interesting aspect of this particular item was that there were no married students among the Caucasian graduates while the greatest number of married students by sub groups was the Negro graduate group with seven.

Two items on the questionnaire, which were unusual, concerned the happiness of the E.M.R. former student. Tables 19 and 20 report the five items which gave the greatest happiness and the five items which gave the next greatest happiness.

TABLE 19

RELATIONSHIPS WHICH GAVE THE GREATEST HAPPINESS AS
REPORTED BY 90 E.M.R. FORMER STUDENTS BY GROUPS

	Control		Drop-out		Graduate	
	Negro	Cau- casian	Negro	Cau- casian	Negro	Cau- casian
Work	5	0	4	5	5	7
Spare Time	4	4	5	2	5	4
Family	6	7	6	4	4	0
Close friends	3	1	3	0	4	1
Civic activity	0	0	0	1	0	0

TABLE 20

RELATIONSHIPS WHICH GAVE THE NEXT TO THE GREATEST
HAPPINESS AS REPORTED BY 90 E.M.R.
FORMER STUDENTS BY GROUPS

	Control		Drop-out		Graduate	
	Negro	Cau- casian	Negro	Cau- casian	Negro	Cau- casian
Work	0	0	2	3	2	1
Spare time	3	4	4	3	9	5
Family	7	1	4	2	3	3
Close friends	7	6	8	3	3	3
Civic activity	1	1	0	0	1	0

A number of variables of leisure activities were reported in the interview-questionnaire by the E.M.R.s involved in the study as shown in Table 21.

TABLE 21
MEAN VARIABLES OF LEISURE AS REPORTED BY 90 E.M.R. FORMER
STUDENTS BY GROUPS AND RACE

	Control		Drop-out		Graduates	
	Negro	Caucasian	Negro	Caucasian	Negro	Caucasian
Spare time	1 T.V.	T.V.	Pool	Riding Car	T.V.	T.V.
Activities	2 Sports	Dance	T.V.	T.V.	Party	Riding Car
3 highest	3 Mechanics	Cars	Cars	Pool	Pool	Cards
Hrs. per week watch- ing T.V.	15.62	17.55	20.62	23.33	14.00	18.60
Movies per month	3.17	4.54	2.31	4.79	2.97	4.42
Hours monthly outdoor activity	31.12	17.00	15.00	16.54	13.05	18.42
Hours weekly Reading	4.16	6.62	5.62	4.23	6.13	6.20
Number of Close Friends	4.30	4.00	4.67	2.63	4.93	2.83

CHAPTER VI

SUMMARY

" The problem of this study was to analyze the characteristics and evaluate the effectiveness of the work-study program of Special Education-Vocational Rehabilitation as conceptualized at Oklahoma City Central High School.

Secondary schools in the process of changing their programs to meet the demand of a rapidly changing social and economic patterns in our society have developed new approaches to educational programming which may be contributive or may have questionable worth. This study was an attempt to determine the value of a new concept of adjustment to an occupation from a formal school setting for the educable mentally retarded high school student. Perceptive educators have realized the importance of testing new developmental programs as they related to the socio/occupational adjustments of students into the complexities of life. The additional responsibility of providing realistic programming for the handicapped student, who has unusual learning problems, has required intensive planning and understanding.

The necessity for evaluating learning concepts by pre-test and post-test techniques when practical and possible is generally conceded. This investigation provided the researcher with post-test data which precluded most research designs except ex post facto. The instrument used in the study concerned itself with the adjustment of the E.M.R. to social and occupational adjustments. The determination of differences between groups who had participated in a new specially designed program of work-study as compared to those students who were assigned to a regular program provided an indication of the realistic gains. Programming in the formal classroom and/or structured supervised work program was measured by normal marking procedures and an indication of the progress was reported. Evaluation of progress made by the students after a time lapse and by a formulized research procedure was assumed to be more meaningful because of the highly structured supervisory roles of personnel who worked with the E.M.R.s in the project.

The instrument used in the study provided data which were used in a formal and an informal statistical procedure on items which were validated by 78 criterion items of a panel of experts. These items had relevances to the period of the study and to the former students who were interviewed by trained teacher-coordinators.

An analysis of the former students' adjustment to

the socio/occupational conditions in the community, after a period of semi independence/ provided the basis for a realistic evaluation of the project. The study attempted to collect data on one work-study program, analyze the findings and make suggestions which could be productive in developing programs for the educable mentally retarded high school student.

Findings

Hypotheses tested were:

- HO₁ There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who have completed an experimental work-study school program and a group who participated in a regular special education program when race was statistically controlled.
- HO₂ There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who have completed an experimental work-study program and a group who failed to complete the program when race was statistically controlled.
- HO₃ There were no significant differences in the socio/occupational scores made by a group of E.M.R.s who failed to complete an experimental work-study program and a group who participated in a regular special education program when race was statistically controlled.

The null hypotheses were rejected in HO₁, HO₂ and HO₃ and these findings were determined, based within the limitations of the study. The graduate group, those students who participated in the total experimental program and graduating from high school scored significantly higher on their socio/occupational adjustment than either the control and/or drop-out group. The control group

scored significantly higher than the drop-out group. These findings would indicate that the experimental program was significantly effective over the control and/or the drop-out group and provides a basis of support for the continuation of the specially designed project.

The informal findings of the questionnaire interview instrument were not tested for variance; however, the means were compared by tables. The basic information of chronological age and the assessment of I.Q.s were within the range of the validating group of the questionnaire-interview instrument. The Negro former students were younger than the Caucasian students in the study; however, they had a significantly higher mean score on their socio/occupational responses. The Negroes had a .86 point spread over the intellectual assessments of the Caucasians.

The findings of the study indicated that the Negroes in the experimental group of graduates had a longer tenure on the job. Mean hours per week on a job in the graduate group was higher than all other groups with the exception of the Negro in the control group. The graduate group had a proportionally higher trained population as it related to skills necessary to achieve success.

The graduate group had a greater amount of savings; however, the members of this group borrowed more money. The graduates' earnings were higher than the control group

who produced more income than the drop-out group. Credit buying was slightly higher for the graduate group over the control group with the drop-out group using this device less than the other groups.

Membership in a church was less for the graduates than the control or drop-out group. Work gave the greatest happiness to the graduate group. The drop-outs indicated that work and spare time both gave them the greatest happiness while the control group reported family and spare time as their choices. The drop-out group spent more time in leisure activities with the exception of reading which was the control and graduates' choice.

Conclusions

Based upon the findings of the study, these conclusions were made:

1. The work-study programming for E.M.R. students at Central High School was effective as it related positively to socio/occupational adjustment.

2. Regular special education programs had a positive effect on the socio/occupational adjustment of the E.M.R. student without regard to experimental programming.

3. The research supports the thesis that scores made on individual I.Q. tests by Negro students do not represent the same ability range as the Caucasian students, resulting in superior adjustments because of realistic

(not measured) higher innate ability.

4. This study showed that contributive programs for the E.M.R. students have a greater opportunity for development as a result of the active collaboration between a secondary school, a state department of education and a vocational rehabilitation agency.

5. Contributive programs in secondary education are more likely to be developed when accreditation standards imposed by state education agencies are modified to permit innovative programs which meet the needs of special groups of students.

Recommendations

1. Specifically designed work-study programs for the high school E.M.R. should be continued until research and/or other programs are found to improve on the present plan at Central High School.

2. This study reinforces the concept that students in a regular program of special education will gain significant socio/occupational skills. It is highly recommended that students remain in regular special education classes over dropping out of school.

3. The pattern for research should be carefully explored before new programs are implemented. Concepts and training procedures should be tested by formalized procedures which include pre-test and post-test data.

4. The development of instruments that measure students with learning problems in a fair and unbiased manner is extremely critical for the psychometrist and class room teacher, particularly as it relates to the evaluation of the minority and disadvantaged students.

5. Secondary schools of sufficient size should develop programs for E.M.R. students similar to those operating at Central High School.

6. Accreditation standards should have greater flexibility to allow secondary schools an opportunity to provide innovative programming.

7. Consideration should be given to the development of comparable programs for other below average students.

8. Programs which concentrate on occupational conditioning/general education should be financed partially through subsidized educational programs.

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APPENDIX A

QUESTIONNAIRE-INTERVIEW INSTRUMENT USED IN SECURING
DATA FROM NINETY FORMER E.M.R. STUDENTS OF THE
OKLAHOMA CITY PUBLIC SCHOOLS

QUESTIONNAIRE

NAME _____

ADDRESS _____

1. Residence: own home (5)____; rent (4)____; apartment (3)____; (2)____; half-way house (1)____
2. How many places have you lived in the past three years? (other than this present residence) _____
3. What kinds of things do you do in your spare time?
List _____

4. Very desirable (5)____; desirable (4)____; not totally desirable (3)____; undesirable (2)____; alone _____
5. With whom? peers____; relatives____; younger friends____; older friends____; parents____; alone _____
6. Hours spent per week watching TV _____
7. Do you like music? very much (5)____; some (4)____; indifferent (3)____; dislikes (2)____; great dislike (1)____
8. How many hours a month do you take part in outdoor recreation? _____
List in hours _____
9. How many times a month do you go to the movies? _____
10. Number of hours spent weekly reading _____
What? _____
11. Law conformity: nature of offense _____
None (5)____; very minor (4)____; minor (3)____;
serious (2)____; very serious (1)____
12. Driver's license: unrestricted (5)____; restricted (4)____; is training for one (3)____; desire one (2)____; (realizes should not) no desire (1)____

13. Amount of savings _____ 14. Amount of indebtedness _____
15. Are you better off (financially) than you were two years ago? much better (5)____; better (4)____; very little better (3)____; about the same (2)____; not as good (1)____
16. Do you pay for your own clothes and personal items: financially responsible for purchases (5)____; usually responsible (4)____; frequently requires financial aid (3)____; often requires financial aid (2)____; very often requires financial aid (1)____
17. How many do you call close friends? _____
18. Do you include friends in the things you do other than work? always____; most of the time____; part of the time____; seldom____; almost never____
19. How did you get your first job? self____; employment agency____; vocational rehabilitation____; counselor____; friends or relatives____
20. How many years do you expect to be working on this job? _____ rest of my life (5)____; ten or fifteen years (4)____; a few years (3)____; a year (2)____; few months (1)____
21. How does your supervisor treat you? work with you (5)____; help you (4)____; ignore you (3)____; exploit (2)____; unfair (1)____
22. Is it easy to get along with the people with whom you work? always (5)____; most of the time (4)____; part of the time (3)____; seldom (2)____; almost never (1)____
23. What type of job did you plan to do _____
24. Are your chances for advancing to a better job? very good (5)____; good (4)____; average (3)____; rather poor (2)____; poor (1)____
25. Is your job in the type of work you were trained to do? exactly (5)____; same general area (4)____; somewhat different (3)____; little training in this area (2)____; no training in this area (1)____
26. Employed: 11 of past 12 months (5)____; 5 to 10 months of past year (4)____; unemployed 7 of past 12 months (3)____; unemployed but actively seeking employment (2)____; resistant to employment (1)____

27. Length of time between completion of job training (or left school) and employment_____ (mo-yrs)

28. Positions held: (start with most recent job): give dates and reasons for job termination

(1) Company_____ Began_____

Job_____ Ended_____

Hours worked_____

per week_____ Total_____

Reason for_____

Leaving_____ Wage_____

(2) Company_____ Began_____

Job_____ Ended_____

Hours worked_____

per week_____ Total_____

Reason for_____

Leaving_____ Wage_____

(3) Company_____ Began_____

Job_____ Ended_____

Hours worked_____

per week_____ Total_____

Reason for_____

Leaving_____ Wage_____

(4) Company_____ Began_____

Job_____ Ended_____

Hours worked_____

per week_____ Total_____

Reason for_____

Leaving_____ Wage_____

(5) Company_____ Began_____

Job_____ Ended_____

Hours worked_____

per week_____ Total_____

Reason for_____

Leaving_____ Wage_____

(6) Company_____ Began_____

Job_____ Ended_____

Hours worked_____

per week_____ Total_____

Reason for_____

Leaving_____ Wage_____

29. Present number of hours employed per week _____
30. Type of employment: skilled____; semi skilled____;
unskilled_____
31. Job tenure rate $\frac{\text{work years}}{\text{number of jobs held}}$
32. Annual earnings: _____
33. Church membership or preference _____
34. How many hours a week do you spend in meetings of
clubs, lodges, unions, and other organizations? _____
35. Do you vote? always (5)____; regularly (4)____;
usually (3)____; sometimes (2)____; never (1)____
36. How many days a month are you with your parents? _____
37. How many hours a day do you work with your parents?

38. Do you depend on your parents for financial support:
no financial support (5)____; infrequent monetary
gifts (4)____; spending money only (3)____; partial
financial support (2)____; total financial support (1)____
39. Do you do credit buying? yes____; no____
40. Do your parents treat you like a child? mature and
independent (5)____; make some suggestions (4)____;
many suggestions (3)____; constantly making sugges-
tions (2)____; dictate what to do (1)____
41. Which of the following give you the greatest happi-
ness? work____; spare time____; family____; close friends
____; civic activities____
42. What gives you the next greatest happiness? work____;
spare time____; family____; close friends____; civic
activities____
43. Marital status: married____; engaged____; single____;
separated____; divorced____
44. Do you and your wife like to do things together?
Practically all____; 1/2____; almost none____; what____
-

APPENDIX B

COMPUTATION FOR THE F RATIO BETWEEN GROUPS,
RACE AND INTERACTION

Cell Means -	B ₁ Graduate	B ₂ Drop-out	B ₃ Control	Total	
A ₁ Negro	63.72	45.94	59.33	168.99	
A ₂ Caucasian	56.42	47.67	51.17	155.26	
	120.14	93.61		324.25	
1. = G^2 / pq	= $(324.25)^2/6$			= 17523.01	
2. = $\sum X^2$					
3. = $(\sum A_j^2)/q$	= $(168.99)^2 + (155.26)^2/3$			= 17554.43	
4. = $(\sum B_j^2)/p$	= $(120.14)^2+(93.61)^2+(110.50)^2/2$			= 17704.46	
5. = $\sum (\overline{AB}_{ij})^2$	= $(63.72)^2+(45.94)^2+(59.33)^2+$ $(56.42)^2+(47.67)^2+(51.17)^2$			= 17764.79	
	$\overline{n}_h$			= 14.41	
SS _A	= $\overline{n}_h$	= $[(3) - (1)]$	= 452.76		
SS _B	= $\overline{n}_h$	= $[(4) - (1)]$	= 2614.69		
SS _{AB}	= $\overline{n}_h$	= $[(5) - (3) - (4) + (1)]$	= 416.59		
Source	SS	df	MS	F	p
A (Race)	452.76	1	452.76	6.48**	<.01
B (Group)	2614.69	2	1307.34	18.72**	<.01
AB (Race) x (Group)	416.59	2	208.30	2.98	N.S.
Within Cell	5867.81	84	69.85		

APPENDIX C

COMPUTATION OF HARMONIC n FOR UNEQUAL CELLS
OF 2 x 3 ANOVA TABLE

		B ₁ Graduate	B ₂ Drop-out	B ₃ Control
Negro A ₁	n_{ij}	18	18	18
	$\sum X$	1147	827	1068
	$\sum X^2$	73661	39485	64612
	SS_{ij}	571.61	1488.94	1244.00
Caucasian A ₂	n_{ij}	12	12	12
	$\sum X$	677	572	614
	$\sum X^2$	38177	28475	32075
	SS_{ij}	694.92	1209.67	658.67

$$\bar{n}_h = \frac{6}{(1/18)+(1/18)+(1/18)+(1/12)+(1/12)+(1/12)} = \frac{6}{0.4164}$$

$$\bar{n}_h = 14.41$$

$$SS_{W.cell} = 571.61+1488.94+1244.00+694.92+1209.67+658.67 = 5867.81$$

APPENDIX D

COMPUTATION FOR SIGNIFICANCE USING THE t TEST BETWEEN
THE CONTROL, DROP-OUT AND GRADUATE GROUPS

	N	X	$\sum X^2$	$\sum x^2$
B ₁ Graduate	30	1824	111838	938.80
B ₂ Drop-out	30	1399	67960	2719.97
B ₃ Control	30	1682	96687	2382.87

$$\frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{X_1^2 + X_2^2}{N(N-1)}}} = \underline{t}$$

$$X_{B1} \neq X_{B2} \text{ i ; } t = 6.91^{**}$$

$$X_{B1} \neq X_{B3} \text{ i ; } t = 2.43 *$$

$$X_{B3} \neq X_{B2} \text{ i ; } t = 3.89 *$$

* .05 level of significance

** .01 level of significance

w/ 58 degrees of freedom

APPENDIX E

SIGNIFICANT CORRELATIONS OF T-SCORES FOR ITEMS USED TO
DETERMINE CRITERION SUCCESS VARIABLES RELATED TO
THE STUDY WITH T-SCORES FOR PREDICTOR VARIABLES

SIGNIFICANT CORRELATIONS^a OF T-SCORES FOR ITEMS USED TO DETERMINE CRITERION SUCCESS
VARIABLES RELATED TO STUDY WITH T-SCORES FOR PREDICTOR VARIABLES

PREDICTOR VARIABLES	Residence	Spare Time Activity	Music Enjoyment	Law Conformity	Driver's License	Improved Finances	Purchase Own Clothes	Job Expectancy	Regard Supervisor	Compatible Employees	Realistic Goals	Job in Training Area	Advancement Possibility	Finances from Parent	Parents Regard- Mature
1. Mental Health		23				28			20			-18			
2. Physical Health							25				21				
3. Freq. of Medication		19													
4. Enjoyed School						-19									
5. Reason Left Home		23						26					24		
6. Optimum Performance		19					34			-20				29	26
7. Emotional Stability		23				21			19	20					23
8. Cheerfulness		26					26								
9. Adaptability			18												
10. Stability of Family	31	29		41	32		-26							-34	-19
11. Perceptual Awareness		18		18					20		22			26	
12. Definite Convictions													25	23	18
13. Recognizes Limitation								24			22				
14. Written Communication								-25							
15. Self Esteem		23		20					30				19		

Parents Regard-Mature	Finances from Parent	Advancement Possibility	Job in Training Area	Realistic Goals	Compatible Employees	Regard Supervisor	Job Expectancy	Purchase Own Clothes	Improved Finances	Driver's License	Law Conformity	Music Enjoyment	Spare Time Activity	Residence
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[illegible]

(CONTINUED)

PREDICTOR VARIABLES	Residence	Spare Time Activity	Music Enjoyment	Law Conformity	Driver's License	Improved Finances	Purchase Own Clothes	Job Expectancy	Regard Supervisor	Compatible Employees	Realistic Goals	Job in Training Area	Advancement Possibility	Finances from Parent	Parents Regard Mature	
49. Parents Regard Mature															23	
50. Years Job Training	-23				19			19								
51. Age Left Home							18	23						24	22	
52. Number Handicaps							-22							-22		
53. I.Q.					20			-20								
54. Lack of Anxiety										18				24		100
55. Truthfulness												-23				
56. Rank of Attention															26	
57. Applies Reasoning																
58. Reaction Time																
59. Psychomotor Speed												-22				
60. Verbal Facility		18			18		-18	-21								
61. Unhappiness						-18	-18	-20		-30						
62. Creative Fluency				-20	21											
63. Creative Flexibility					20											
64. Creative Frequency		20														
65. Practical Creativity										-19		19				

(CONTINUED)

101.

PREDICTOR VARIABLES	Residence	Spare Time Activity	Music Enjoyment	Law Conformity	Driver's License	Improved Finances	Purchase Own Clothes	Job Expectancy	Regard Supervisor	Compatible Employees	Realistic Goals	Job in Training Area	Advancement Possibility	Finances from Parent	Parents Regard- Mature
66. Creative Elaboration							-22								
67. Drawman Mental Health															
68. Parent's Activity							-31								
69. Index of Social Class				-26			36				26			32	18
70. Family Dynamics															
71. Attitude Job and Employer						31	22	27	26						
72. Intevsonal Development						24		19	32					27	
73. Need Achievement		23				37	30	27	30					22	
74. Self - Concept							19	20	28					35	24
75. Self - Direction							42			-24				46	40
76. Occupational Maturity						31	28				18		22	29	25
77. Communicative Maturity															
78. Social Maturity							23					-21		27	27

^a.18 Sig. at .05; .23 Sig. at .01.