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ABSTRACT

A COMPARATIVE ANALYSIS OF THE NATURE OF EDUCABLE MENTALLY RETARDED ADOLESCENTS' EXPRESSED LEVEL OF UNDERSTANDING OF SELECTED OCCUPATIONS

by Elmer J. Kuhn

The purpose of this study was to investigate the nature of educable mentally retarded adolescent children's expressed level of understanding of selected occupations as compared to intellectually normal children of comparable general chronological and mental ages. Subordinate problems were: (1) the relationships between expressed level of understanding of selected occupations by educable mentally retarded adolescents and their chronological and mental ages; and (2) the vocational preferences of the educable mentally retarded adolescents with regard to the selected occupations presented in the study.

A random sample of 150 students from public junior high schools and elementary schools located in the northern area of the state of Illinois was the basis for the study. Fifty adolescent educable mentally retarded junior high school students enrolled in a state

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approved program composed the experimental group. Fifty adolescent intellectually normal junior high school students formed the chronological age control group, and fifty intellectually normal elementary school students in the fourth and fifth grades formed the mental age control group.

All subjects were interviewed in two, forty-five minute interviews regarding their understanding of fourteen selected occupations representing seven occupational areas. The seven occupational areas designated were commercial, personal service, agriculture, mechanical, professional, esthetic, and scientific. The specific occupations selected for the areas were secretary, insurance salesman, cook, barber, dairy farmer, poultrymen, automobile mechanic, carpenter, dentist, teacher, actor, musician, pharmacist, and weatherman. Pictures of persons engaged in each of the selected occupations were shown to the subjects prior to the interview to ascertain that each subject could identify the occupation.

The identification of four levels of understanding on a continuum of increasing meaning and social insight was used for all subjects. The four levels of understanding were defined by recognition of certain aspects and relationships of the occupation to knowledge of the

job and social understanding. Vocational preferences were indicated by asking which of the occupations were most and least preferred. The responses were ranked and a comparative analysis was made using the levels of understanding achieved in the preferred occupations.

Data obtained from evaluation of interviews with children and inspection of school records were subjected to analysis of variance and calculations of coefficients of correlation in order to test the hypotheses. Tests were made of the hypotheses that there are no significant differences in the children's levels of expressed understanding of the selected occupations and no significant differences in the relationships between the children's levels of understanding and their chronological age and mental age.

Significant Findings

1. The levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general chronological and comparable general mental age did differ significantly.

2. The levels of understanding of educable mentally retarded adolescents among the seven major areas of occupations did differ significantly.

3. There were no significant differences in the relationships among the expressed levels of understanding

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of educable mentally retarded adolescents for each of the seven major occupational areas and their own chronological age.

4. The relationship between the level of expressed understanding of the adolescent mentally retarded subjects and their mental age was significant in the occupational areas of agriculture, mechanical, and esthetic. There were no significant differences in the relationships established in the other areas.

5. The selected occupations most preferred by the adolescent educable mentally retarded subjects were secretary, auto mechanic, teacher, carpenter, and cook. The selected occupations least preferred by the adolescent educable mentally retarded subjects were dentist, dairy farmer, teacher, weatherman, and cook.

6. The general level of expressed understanding for the educable mentally retarded adolescents was the lowest end of the Level 3 scale which indicates a minimal level of understanding of the general aspects of an occupation.

7. The rank order of the educable mentally retarded adolescent's mean scores for the occupational interview for their parent's occupational area listed that of professional and scientific as first and second. Those that least understood their parent's occupational area had parents in the agriculture and commercial areas.

A COMPARATIVE ANALYSIS OF THE NATURE OF EDUCABLE MENTALLY RETARDED ADOLESCENTS' EXPRESSED LEVEL OF UNDERSTANDING OF SELECTED OCCUPATIONS

By

Elmer J. Kuhn

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Acknowledgement is also made to Science Research Associates, Inc., for making available to the writer some of the occupational material that was at that time not yet on the market.

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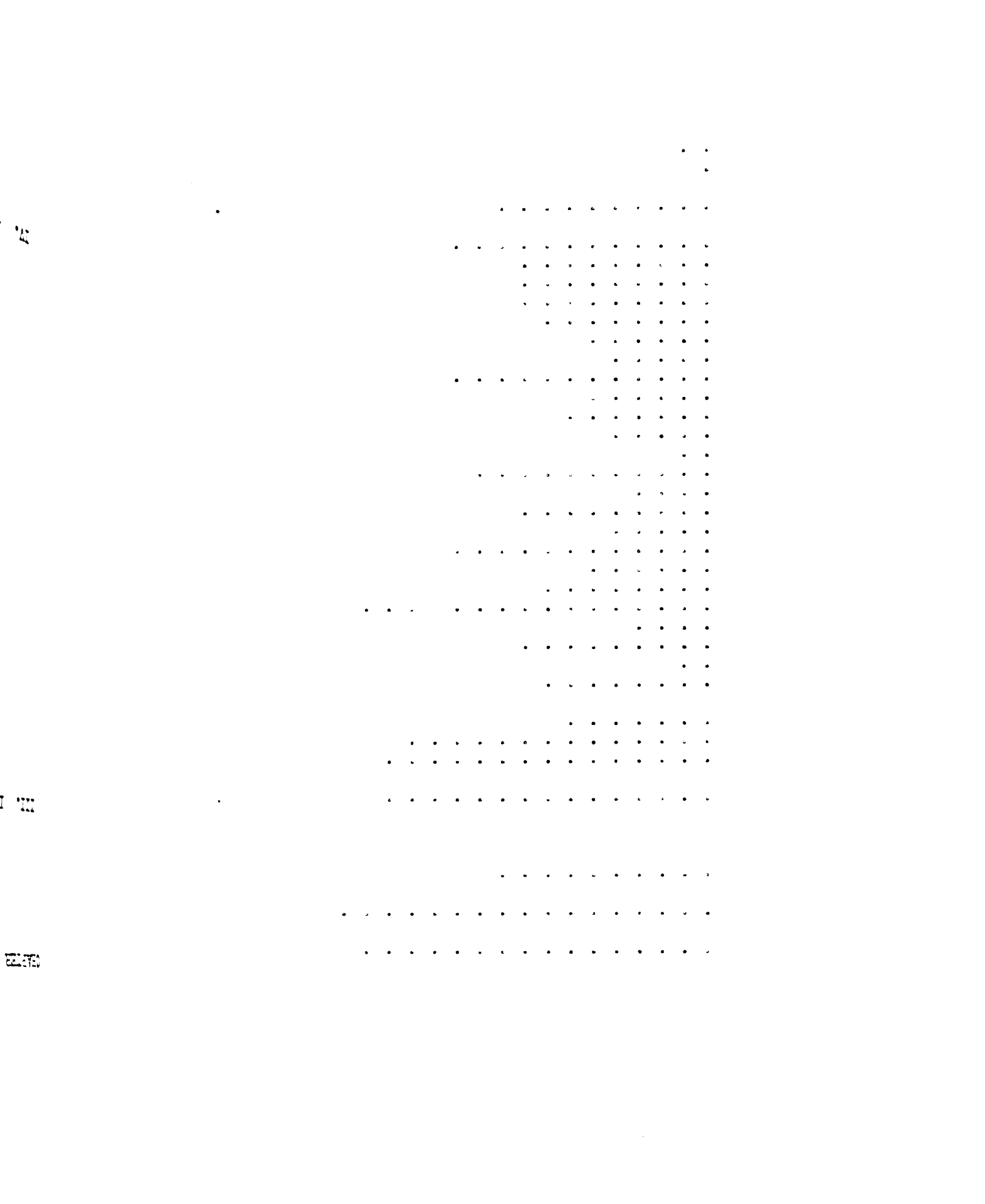

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CHAPTER I: THE PROBLEM

The problem of understanding occupations and the world of work is one that faces every student and is one that is of major importance for the retardate. How realistic are the perceptions of the retardate with respect to the occupations found in today's society? A realistic perception of the occupations can afford the retardate the opportunity to view job preparation with a wholesome attitude and better understanding of the nature of work.

Purpose

The purpose of this study is to investigate the nature of educable mentally retarded adolescent children's expressed level of understanding of selected occupations as compared to intellectually normal children of comparable general chronological and mental ages. Subordinate problems to be investigated are: (1) the

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relationships between expressed level of understanding of selected occupations by educable mentally retarded adolescents and their chronological and mental ages; and (2) the vocational preferences of the educable mentally retarded adolescents with regard to the selected occupations presented in the study.

Hypotheses

The hypotheses generally stated are related to the nature of educable mentally retarded adolescent's level of understanding of selected occupations and selected occupational areas.

1. There are differences in the expressed level of understanding of occupations as stated by educable mentally retarded adolescents and intellectually normal children of comparable chronological age.
2. There are differences in the expressed level of understanding of occupations as stated by educable mentally retarded adolescents and intellectually normal children of comparable mental age.
3. There are differences in the expressed level of understanding of adolescent educable mentally retarded children as expressed for each of the

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selected occupational areas.

4. There are relationships between expressed levels of understanding of adolescent educable mentally retarded children in each of the occupational areas and their chronological ages.
5. There are relationships between the expressed levels of understanding of adolescent educable mentally retarded children in each of the occupational areas and their mental ages.

In addition to the stated hypotheses, the vocational preferences of the adolescent mentally retarded children are studied through responses gained from the following questions:

1. What selected occupations are most preferred and least preferred by adolescent educable mentally retarded children?
2. What general level of expressed understanding has been attained by adolescent educable mentally retarded children with regard to the selected occupations they most and least prefer?

The following questions are to determine the general level of understanding of the educable mentally retarded subjects for each of the occupational areas and

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the relationship of their fathers' occupations to the subjects' scores for the related areas.

1. What general level of expressed understanding has been attained by adolescent educable mentally retarded children for each of the selected occupational areas?
2. What general level of expressed understanding of occupations has been attained by adolescent educable mentally retarded children in the occupational areas of their fathers?

Importance of the Study

The educable mentally retarded are expected to compete on the open job market in their own areas of competence. Previous knowledge and understanding of occupations as well as opportunities for job training is considered essential for securing appropriate employment.

In a report published for the President's Panel on Mental Retardation in 1962, it was stated that:

> . . . special attention should be given to helping individuals learn about the world of work, in a wholesome and appropriate manner. At the present time, in a majority of cases, the type of preparation described . . . is lacking. As a result, when the retardate reaches adulthood, he is poorly equipped for job training or placement and it is too late to overcome the handicaps which have been allowed to accrue (33:53).

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Identification and Education of Mentally Retarded

In the report, Guide to Job Placement of the Mentally Retarded, submitted by the President's Committee on Employment of the Handicapped in 1964 (31:3), it was estimated that about five and one-half million retarded persons live in the United States today. Of these, approximately two million of them are of employable age. With the increased birth rate and the increase in medical knowledge, it is likely that there will be more retarded persons in the years ahead.

Prevalence of mental deficiency, particularly among the less severely retarded, depends upon the area in which the study is conducted. Prevalence figures from different areas are not directly comparable, except as figures which represent the cultural-socio-economic differences in the areas.

A census of suspected mental retardates was conducted in Onondaga County, New York in 1953 by the Mental Health Research Unit of the New York State Department of Mental Hygiene. The results of this survey indicated a prevalence rate of 3.5 percent of mental retardation in subjects under eighteen years of age (21:226-31).

A distribution of composite intelligence scores on the Stanford-Binet, Form L-M indicates that 2.63 percent of the children have an Intelligence Quotient of less than 70 and represent the group Terman labels mentally retarded or mentally deficient (45:18). According to the normal curve, 2.14 percent of the children should have IQ's between 55 and 70. Kirk states that the rate of educable mentally retarded in various parts of the United States can be estimated by considering the socio-economic and cultural levels of the community (20:92). Taking an average of the levels defined by Kirk, it can be assumed that 2.8 percent of the children can be classified as educable mentally retarded.

Identification of the mentally retarded is usually made through the school personnel. The elementary grade teacher becomes aware of the slow learner and requests an individual intelligence test to be administered in order to determine the level of intelligence. The educable mentally retarded child is not usually recognized at the pre-school level. There are some signs of mental retardation such as delayed talking, language and walking that do not cause too great a concern to the parents. When the child begins to fail subject matter areas in

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school, the parents and school personnel become more concerned.

The educable mentally retarded child is usually academically, socially, and emotionally below the average child, and adjustment in the regular classroom is difficult. Various types of special schools and classrooms have been organized in school systems throughout the country. Kirk classifies the classroom organizations as, special segregated schools, ungraded special class, modified special class, itinerant teacher program, and homogenous special class (20:116-17). The class most preferred by special educators is the homogenous special class. This type of class is comprised of educable mentally retarded children who are within a small range of mental age classification, as well as chronological age category. The Illinois State Department of Education uses this plan of organization for the special classrooms that are certified by the state.

Complexity of the World of Work

The demand for unskilled workers since 1960 is steadily decreasing. Baer and Roeber state that:

> One of the characteristics of the changing labor force has been the rising level of educational attainment. This trend, reflecting the need for

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> skilled manpower in a growing and complex economy, will continue (1:88).

With the increased number of retarded persons reaching maturity, and changes in the world of work, it becomes evident that their employability will become more of a problem than it is at the present time.

Society is now undergoing a rapid change in the technology of the world of work. The effect of automation on the job outlook is one that is of significance to the employment of the mentally retarded. The problem of employment for the retarded will be that of finding suitable areas of employment. The Occupation Outlook Handbook states that one of the faster growing occupational groups is that of service workers (28:24). Employment in professional, technical and related occupations has risen rapidly over the years. The most significant change in the occupational structure has been the shift toward white-collar jobs. Rapid growth is expected in the white-collar group, with an increase expected to be approximately 45 percent more jobs than that in 1960 (28:23).

It is fortunate that there is a substantial increase predicted for the service area, where employment can be found for individuals with the lesser skills and

intelligence. For example, some of the jobs listed in this area are janitors, service station workers, laundry workers, cooks, and practical nurses. The growth in this area has been due to such factors as the increase in the numbers of women who are in the world of work and need special services, the movement of the population to urban centers, an increased demand for services of all kinds, a more affluent society, and the greater number of retired persons requiring services after retirement. According to the Occupational Outlook Handbook, the numerical growth of service workers will amount to about 12½ million in 1975, which is half as many as employed in 1960 (28:25).

The area of farming is showing a steady decline in the number of persons to be employed. This area has provided opportunities for mentally retarded individuals in such occupations as farm hands, field hands, pickers, packers, and machine operators. The number of persons in the farm area will decline to about 4 million, which is about 4.5 percent of the total labor force (28:15).

Early Information

Occupational information is essentially the beginning of job preparation. The President's Panel on

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Mental Retardation (33:53), show that in many school programs, learning about the world of work in a wholesome and appropriate manner is lacking. As a result, many retardates are poorly equipped for job training and placement. The brochure prepared by the Science Research Associates, Inc., introducing a series of readers for the slow reader in the area of occupational information, indicates that the slow student and the educable mentally retarded student need information and realistic job conceptions about the unskilled and semi-skilled and earlier than other students (35:2).

The importance of occupational information or occupational education at an early educational level has been advocated by many authors. Willa Norris states:

> By the time the child reaches junior high school he has a rather positive or negative attitude toward a wide variety of occupations. . . . An elementary grade program of occupational study helps provide the child with accurate information about himself and the world of work (27:34).

Lifton points out serious implications regarding early experiences of children in school with occupational information (24:2). He says that the mounting evidence from the studies on the effects of early experiences on vocational choices made later in life cannot be ignored. The situation must be recognized as it now exists, and

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because of little or no experiences offered the student at an early level, the drop-out problems are created.

The Illinois Committee for the 1960 White House Conference on Children and Youth indicates the importance of early vocational information (18:73). This committee felt that by the time a young person reaches the age of selecting a suitable vocational choice, other factors have been present that would tend to limit the number and range of choice. It was indicated that vocational choice begins early in childhood as the child learns about the world around him.

The implication of early information about occupations for the mentally retarded is indicated by Cruickshank (5:111). He writes that many problems in the later life of the retardate could be avoided if the child during the early school years is helped to realistically appraise his limitations and capacities in terms of the requirements of the numerous vocational areas.

The total school program for the educable mentally retarded student should be aimed toward work placement and successful adjustment to his immediate environment (40:5). Preparation for employment is

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essentially a part of the educational program for all public schools and institutions. Throughout the school years, one of the major objectives should be the preparation of the student to meet his obligations in life as well prepared as possible. The implications for the retarded in the public school program and vocational information is even more vital than that for the intellectually normal child. G. Orville Johnson writes that:

> . . . the program in the junior high school (is) ordinarily for mentally handicapped children from 13 to 16 years of age with mental ages from 8 to 11 . . . readiness for learning about jobs and job requirements should be established during this period (19:208-9).

Preparation for Employment

There is a growing concern regarding the preparation of the mentally retarded for employment and economic self-sufficiency. A part of the proceedings of a conference for the Vocational Rehabilitation of the Mentally Retarded held at Dallas College in 1960, dealt primarily with employment and education. The following questions were asked:

> What kinds of programs should and can public schools provide in relation to preparation of the mentally retarded youth for employment? How can the community assist the public schools and rehabilitation agencies? At what place in the school program of the mentally retarded children should vocational guidance and training be initiated? (34:91).

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The mentally retarded experience difficulty in finding and holding jobs, even those which are considered unskilled. Most jobs demand skills that the retarded is not capable of handling. The nonskilled job requirements are sometimes difficult for the mentally retarded individual. The President's Panel on Mental Retardation asks that:

> Every effort be made and all available services used to equip and train the retarded and assist them in finding suitable employment (32:129).

The school has the responsibility for making the adjustment from classroom to work an easier transition for the mentally handicapped individual. Hungerford, DeProspo and Rosenwrig write that the mentally retarded school child must be provided with facts about the work world (15:60). Information such as the working hours, pay, working conditions, job requirements, must be made available to the students if appropriate choices are to be made. These authors further state that vocational information should start at the beginning of school and not near the end so that each individual has an opportunity to benefit fully from the information.

Goldstein and Heber (11:20), reporting on a

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national conference for the Preparation of Mentally Retarded Youth for Employment held in 1958, point out that it was the consensus of the leaders present at the conference that preparing retarded youth for job placement begin early in the school years. In addition, these national leaders stated that under ideal conditions, preparation for social and vocational adjustment should start in the home and continue with the first day the child enters school. It was also indicated that throughout the school years, one of the major objectives in the school curriculum is preparation for employment.

The responsibility of the schools for the preparation of employment is described by Anna Engel when she writes that:

> There is probably no aspect of education of mentally retarded children which is more important than that which concerns itself with the social and occupational adjustment in adult life (8:80).

The teachers in special education have the responsibility of providing realistic and appropriate information regarding occupations. The retardate cannot be expected to make the adjustment from the school situation to a job placement without some form of

occupational training or workshop experience. This transition can be made an easier experience if an effort has been made during the school years to provide the retardate with appropriate occupational information.

Theory

Intelligence is a factor which has a great deal to do with vocational success and behavior. The rate at which a child progresses in a school situation is dependent upon his rate of mental development. It can be suggested that the educable mentally retarded child develops intellectually at approximately one-half to three-quarters that of the intellectually normal child.

Vocational Maturity

Donald Super suggests that vocational maturity can be evaluated from either two points of reference. He states:

> The first is concerned with the person's chronological age, which indicates the life stage in which, on a normative basis, he should be found and hence the developmental tasks with which he should be dealing. . . . The second way of evaluating vocational maturity is based on the behavioral repertoire with which the individual has

> available for coping with the developmental tasks with which he is dealing, regardless of whether they are the tasks appropriate for his age and expected life stage (43:57).

It is this second approach stated by Super that bears relevancy for the mentally retarded child or adult. This second way of evaluation takes into account the manner in which the developmental tasks are to be handled rather than at which stage the individual should be at for a certain age or time. In the case of most normal individuals, the first and second suggestions made by Super coincide and the evaluations are the same. However, the retarded person could be considered as immature vocationally, but can best be identified using the second approach suggested by Super.

Vocational Development

The concept of developmental tasks was developed by Havighurst. He defines the developmental task as follows:

> A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks (12:2).

As the individual increases in age, it is expected that his behavior will be more mature, and that he will

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succumb to society's demands and progress to the more complex activities. The individual's vocational behavior will also progress along the same lines as his maturation. One of the tasks of adolescence listed by Havighurst is the task of selecting and preparing for an occupation.

Donald E. Super, in his Vocational Development: A Framework for Research, developed ten postulates around the concept of life stages set up by Charlotte Buehler, and refined by the findings of Miller and Form, and Ginzberg and his associates. The first two of these life stages are relevant to this study and are described by Super as follows:

> The first stage is characterized as one of growth. It begins with conception, continues until approximately the age of fourteen, and is a period of very rapid physical, emotional, and mental development. The next stage is exploration and, as its name implies, is the period in which the individual attempts to understand himself and to find his place in the world of adults and of work (43:37).

The major assumptions that this study will be concerned with is the fourth postulate developed by Super and stated as follows:

> The vocational development of an individual may be evaluated with reference to the maturity of his vocational behavior. This may be done on a normative basis following --

4a. A determination of the vocational developmental tasks characteristic of each life stage.
4b. A determination of the behaviors engaged in by individuals who are coping with the same developmental tasks.
4c. A qualitive evaluation of the presumed complexity and effectiveness of such behavior (44:7).

It has been suggested by Havighurst and by Super that the individual is ready to begin vocational planning when in terms of his vocational development he is not yet ready (44:10). Most individuals have to make a number of educational and vocational decisions during their lifetime and it is important to know how well prepared the individuals are to make these decisions. This study is concerned with the educable mentally retarded adolescents and the extent of understanding they possess regarding occupations.

Information concerning the vocational maturity is needed, especially during the adolescence period. Super suggests that information concerning the vocational maturity of young people in the American Culture is needed. He further states:

> Studies of vocational development can provide normative data concerning vocational behavior at different age and grade levels. When such basic data are available, obtained from an adequate sampling of the population, educators will know more clearly whether the educational system as now organized requires choice-making tasks of its students, at appropriate times, or

whether some revision in educational practice is needed (44:11).

Scope of Study

A random sample of 150 students from junior high schools and elementary schools located in the northern area of the state of Illinois was used as a basis for the study. Fifty adolescent educable mentally retarded junior high school students defined as educable mentally retarded by the Illinois State School Code (17:42), composed the experimental group. Fifty adolescent intellectually normal junior high school students formed the chronological age control group, and fifty intellectually normal elementary school students formed the mental age control group.

The present study was designed to extend and implement previous investigations dealing with the mentally retarded and occupational information. This study follows the design used by Parker in his study of An Analysis of Children's Concepts of Selected Occupations (29).

All subjects were interviewed regarding their understanding of fourteen selected occupations. Pictures of workers on jobs for each of the selected occupations were shown to the subjects prior to the interview to

ascertain that each subject could identify the occupation. A list of instructions, an interview record card and an interview form were prepared for each subject.

The subject's school records were examined for data concerning date of birth, sex, IQ test, date of test, parents' names and occupations. This information along with the results of the interviews were analyzed in order to determine the level of understanding of occupations as determined for the educable mentally retarded group and compared to the two control groups.

Levels of understanding were determined for each of the subjects interviewed. These expressed levels of understanding rated on a four point scale for the educable mentally retarded were compared to the levels obtained by the chronological age control group and the mental age control group. The purpose of comparison was to determine if the levels of understanding expressed by the educable mentally retarded were more like their chronological age counterparts, or more like their mental age counterparts.

Delimitation of the Study

The following factors are to be considered as delimitations of the study.

1. The age of the educable mentally retarded students included in the experimental group is limited to a range between the ages of thirteen and sixteen years.
2. The sample of students is limited to those in public schools in the northern area of the state of Illinois.
3. The educable mentally retarded subjects are obtained from only those public schools in the area that have state recognized programs for special education.
4. All subjects selected in the study are free of any major physical handicap that is classified by the state of Illinois as exceptional and eligible for special education.
5. The level of understanding of occupations is limited to the fourteen occupations selected for this study.
6. The variables used for comparison with the expressed level of understanding of occupations include the mental age, chronological age, and occupation of the subject's father.
7. The choice of occupation best or least liked

by the subject is limited to the fourteen selected occupations presented in the study.

Definitions of Terms

The following terms used in the study are defined as to their operational definition for this particular study.

Educable Mentally Retarded

These are children between the ages of 5 and 21 years who, because of retarded intellectual development as determined by individual psychological examination are not capable of being educated efficiently in an ordinary classroom. The range of IQ is generally between the low of 55 and a high of 80, except that other relevant factors must also be considered. The term Retardate will be used to define an educable mentally retarded individual regardless of age range.

Slow Learner

The slow learner is that person who has a rate of intellectual growth between three-fourths and nine-tenths that of the average. The slow learners are

those children who score between approximately 80 and 95 IQ on a verbal intelligence test. The average or normal score on a verbal intelligence test shall be considered an IQ score of 100.

Intellectually Normal Children

The intellectually normal child is that child who has not been classified as educable mentally retarded and is operating in a regular classroom in a public school.

Major Occupational Areas

The seven major occupational areas were classified by the Brainard Occupational Preference Inventory (3). This classification of occupational areas were the seven areas known as commerical, personal service, agriculture, mechanical, professional, esthetic, and scientific.

Selected Occupations

The fourteen occupations included in the study were referred to as selected occupations. Two occupations were selected from each of seven major occupational areas in the Brainard Occupational Preference Inventory. The selected occupations were secretary,

cook, poultry farmer, auto mechanic, teacher, musician, weatherman, insurance salesman, barber, dairy farmer, carpenter, dentist, actor, and pharmacist.

Level of Understanding

The expressed level of understanding is defined as a degree of understanding of an occupation on a continuum of increasing meaning and social insight. The four levels of understanding were rated from a low of one to a high of four. The procedure for determining these levels and a description of each level has been provided in the third chapter of the study.

Adolescent

The adolescent is that person who has begun his pubescent growth and has not as yet reached the period of adulthood. The term adolescent as used in the study will refer to the age span beginning at the age of thirteen and extending to the age of eighteen. The ages of the subjects involved in the study range from thirteen years to 15 years, 11 months.

Occupational Information

This term is defined as information regarding any job or occupation which covers such factors as

duties, requirements for entrance, rewards, advancement, and supply and demand.

Occupational Education

Occupational education is defined as that part of the school curriculum that is primarily devoted to the presentation of occupational information for the benefit of the students enrolled in the school.

Junior High School

The junior high school is a public school in the American educational system that consists of grades seven, eight, and nine.

Elementary School

The elementary school is a public school in the American educational system that contains a kindergarten and grades one through six.

Exceptional Child

The exceptional child is one who deviates intellectually, physically, socially, or emotionally from the normal standards to the extent that he cannot receive maximum benefit from the regular school program and requires a special class or instructional service.

Special Education

Special education is that area of education that deals with children who are classified as exceptional.

Plan of Study

This study has been divided into five chapters. The first chapter consists of a statement of the problem, the purpose of the study, the general hypotheses, the importance of the study, related theory, limitations and scope of study, and definition of terms used in the study. A review of related literature is presented in the second chapter. The third chapter contains the nature of the design for the study, the statistical hypotheses and related problems, a description of the sample and the instrumentation. The fourth chapter consists of the analysis and interpretation of the data obtained in the interviews of the subjects. The fifth chapter contains the summary and conclusions of the study. The Appendix is divided into three parts. Appendix A consists of the interview form and card, Appendix B contains the student responses illustrative of levels of understanding occupations, and Appendix C contains supplementary tables.

The next chapter contains a review of the pertinent literature and related studies that are concerned with the area of occupations and the mentally retarded as well as studies related to the normal child and the area of occupational information.

CHAPTER II: REVIEW OF LITERATURE

A study of the literature written in the past ten years in the area of the mentally retarded shows an increased interest in the problems of the retarded. Much of the research has been devoted to the identification and classification of the retarded, the basic educational problems, and the community and family relationships of the retarded.

Articles dealing with the vocational aspects of the retarded are centered mostly around the sheltered workshop experiences, and the preparation of the retarded for employment. There has been limited research regarding the knowledge and understanding of occupations by adolescent mentally retarded subjects prior to sheltered workshop experiences.

Studies of Prevocational Evaluation

The prevocational evaluation of the retarded individual in vocational rehabilitation is of great con-

cern at the present time. One of the major problems is the lack of some measure by which the rehabilitation worker could reasonably predict the success of the mentally retarded individual's placement in a work situation.

The Vocational Interest and Sophistication Assessment (VISA) test was developed at the Johnstone Training Center for the purpose of investigating the vocational interests and knowledge of job conditions (30:51). More specifically, the VISA was developed as a part of the vocational prediction that would complement prevocational workshop evaluation programs. The VISA is particularly appropriate for the retarded individual in that it is reading free, has proper content for the retardate, and is able to differentiate the subject's vocational interests as well as knowledge of job conditions.

The sample for the research study totaled 437 students who were involved in at least one phase of the program. The age range was from fifteen to twenty-five years, with a mean age of eighteen and one-half years. The mean IQ of the sample was 62, with an associated mental age mean of nine years, five months (30:12).

Standard vocational and interest tests were not applicable for the mentally retarded since the reading ability and comprehension of such tests were far above that achieved by mentally retarded adolescents. The VISA was developed for use by mentally retarded males and females in the areas of occupations that were considered as feasible for the mildly retarded individual. The form best suited for the presentation of the material was pictorial. Drawings were made by artists that showed persons at designated tasks.

The sophistication assessment portion of the test consisted of eight questions that were asked as the subjects viewed the pictures. The questions were developed to determine the level of knowledge attained by the subject in that particular occupation. Evidence of the reliability of the vocational assessment appeared to be sufficiently high enough to warrant further development of the test. There were no analyses made of the relationship between age and the responses. It was stated by Parnicky (30:61), that it appears likely that, in the absence of realistic knowledge of job requirements and conditions, vocational interests are poorly grounded and tenuous.

J. S. Cohen (4:371-75) in a study of vocational failures found that the variables of work interests, motivation and understanding of job requirements were far more critical than specific job capacities and skills for determining job success.

W. Kuhn Barnett (2:6) stated that if the curriculums of the various states were examined, one of the most important factors in curriculum development predominating would be prevocational training. In order to realize the objectives set forth, the junior high age group school experiences are related to vocational interests and the need for information concerning jobs.

Anna M. Engel (8:90) in discussing the required training before job placement says there is probably no aspect of the education for mentally retarded that is more important than that of occupational adjustment in adult life. She writes that it is very important that the mentally handicapped have the necessary help to guide them into jobs and that each person must have information about available work and the importance of this work to the world.

Hungerford, DeProspo and Rosenweig (15:60) write that if a person is to make a wise vocational

choice, he must first be provided with the knowledge of the world of work. Information such as requirements for the job, pay, hours, tenure and working conditions must be presented to the individual prior to making a vocational commitment. These authors further state that the retarded individual must be taught at school to choose the work he can do and to prepare adequately for that work.

Children's Concepts of Occupations

Research pertaining to concepts of occupations has in the past been related to the broader topics such as occupational preference, interests and of aptitudes. Most of these studies have been done with junior and senior high school students as subjects.

Krippner (22:88-90) investigated the vocational preferences of high-achieving and low-achieving junior high school students and related the most popular professional choices of education, engineering, medicine, and science to occupational stereotypes. A significantly greater number of high-achieving than low-achieving girls selected teaching as a career, and a significantly greater number of high-achieving than low-achiev-

ing boys preferred science as a career. Krippner concluded that unfavorable elements in the occupational stereotypes of teacher and scientist may have caused a lack of interest in these occupations on the part of low-achievers.

The nature of elementary school children's level of understanding of occupations was the subject of a study by Parker (29). The subjects were elementary school children, grades two, four and six, drawn from the public school system of DeKalb, Illinois. The occupations used in the study were secretary, insurance salesman, cook, barber, dairy farmer, poultryman, automobile mechanic, carpenter, dentist, teacher, actor, musician, pharmacist, and weatherman. These occupations were chosen on the basis that they were representative of occupational areas provided by the Brainard Occupational Inventory. The occupational areas represented were known as commercial, personal service, agriculture, mechanical, professional, esthetic, and scientific.

The instrument was developed by Parker and tested through a pilot sample. A panel of judges tested the rating instrument and evaluated the interviews. The

mean differences between the scores granted by the judges were tested for significance through the calculation of critical ratios. The obtained t ratios were .03, 1.17 and 1.19. The .01 level of significance was determined to be 2.66 for the sample, and no significant differences was assumed in the judge's evaluations.

The analysis of variance was used to test the significance of the differences between the elementary children's mean scores in the seven occupational areas. The variance ratio was found to be 8.72 with 6 and 1043 degrees of freedom. A variance ratio of 2.82 or larger would have indicated a .01 level of significance.

The attained level of understanding by elementary school children in the seven occupational areas was at the general knowledge level. The levels indicated by the testing instrument were rated from a high of four to a low of one. The rating of three indicated a general knowledge of the occupations presented and was attained by the subjects in all three grade levels.

Reports from previous studies have indicated that children have a fascination for glamour type jobs and that they have unrealistic conceptions of the world at work (29). Parker's study indicates that elementary

school children do have a good general knowledge of occupations. These children had a mental age range of 68 to 203 months and a chronological age range of 90 to 166 months. The mental age range would be in the general area of mentally retarded adolescents with a chronological age range from 150 to 190 months.

Lockwood (25:98-105) in a review of literature, in 1958, suggested that relatively few studies were available that attacked the area of realism of vocational preference directly. The purpose of his study was to determine the relationship between certain personal and social factors in a group of high school seniors and the realism of their vocational preferences.

He found that a student's realism of vocational preference is apparently uninfluenced by and unrelated to the social-economic-cultural-prestige factors represented by residential district, race, sex, school attended, parental occupational level, and number of other children in the family. The factor of intelligence seems to be directly related to the level of a student's realism of vocational preference. It appears that the more intelligent student would have more information about himself and the world of work to permit him to

make a more realistic choice of an occupation. However, inasmuch as IQ was one of the factors considered in assigning realism scores for the study, limited confidence can be placed in the apparently significant relationship between intelligence and realism of vocational preference.

Nelson (26:741-54) studied a group of elementary and secondary students to determine their knowledge and interests concerning a group of selected occupations. He states that accurate occupational information is essential to effective occupational choice. He found that the upper intelligence level groups in both the elementary and secondary groups scored significantly higher in occupational knowledge than the lower in all cases. He found significant differences between the groups tested for occupational knowledge in the areas of grade differences, socio-economic levels and intelligence levels.

Vocational Choices

The vocational choices of adolescent mentally retarded boys was investigated by Robert Erdman (9). The evidence gathered in his study suggested among other

things that the vocational program should be planned in such a manner that the retarded become aware of the structure and characteristics of the labor force. Erdman also found that only one-third of the boys had made unrealistic choices at the skilled job level.

Davis, Hagan, and Strouf (6:628-29) worked with a group of twelve-year-olds investigating tentative and fantasy choices in occupations. They found that the "retarded reader" and the "children who have less than 90 IQ made fantasy choices more often than tentative choices". They further state that their study indicated that reading retardation may be related to immaturity of occupational choice.

Occupational Education in the Curriculum

The teaching of occupations is particularly important to the employability of the mentally retarded. Anna Engel (8:80) writes that in the education of the mentally retarded, there is probably no aspect as important as that which is concerned with social and occupational adjustment in adult life.

In a series of reviews of research on the teaching of occupations (39:504-07) a number of the studies

indicated that the study of occupations as a part of the curriculum resulted in better understanding of the jobs studied and of vocational choices made as a follow-up of the course. Leonard (23:504) taught a course involving an intensive study of three occupations per student at the sophomore and junior levels in high school. The results indicated that each student evidenced greater realism in occupational choice and a greater certainty regarding occupational information. Rosengarten (37) studied a group of seniors in high school who participated in an occupational orientation program during their last year at high school. One year after graduation he found that the students who participated in the program surpassed a comparable group of their classmates in average earnings, were employed for greater lengths of time, and were more satisfied with their jobs.

Toporowski (46) studied a group of high school seniors who completed a one semester course on occupations. A follow-up study indicated that 6 months after graduation the experimental group were significantly more independent in job choice and earned more money than the control group. He also found that the experi-

mental group's jobs were closer to their measured interests.

The teaching of occupations must be done at a time when the students are ready to use the information. The failures in teaching occupations has been described by Hoppock (14:173) as due in part to poor placement of the unit in the curriculum. Hoppock states that the teaching of occupations is best utilized at the time just before the student goes out to look for a job (14:172).

Specific results of research by several different investigators have been drawn together by Hoppock. A study conducted by J. E. Kuttner, "An Evaluation of Occupational Field Trips Conducted by Patterson Technical and Vocational High School in Terms of Vocational Success," reviewed by Hoppock (14:363-64), showed that the seniors involved in an experimental group in occupations did not differ significantly from the equated control group on job satisfaction, weekly wages, number of jobs held, and employer ratings.

Conflicting results from different studies indicated success in some and failure in others. It appears as though success or failure in a course of occupational information depends on several factors. Some of the

reasons for conflicting results explained by Hoppock (14:362) are competence of instructor, the accuracy of materials used, and the ability and interest of the students.

The curriculum in special education for the mentally retarded usually emphasizes academic work, the overall development of the child, and prevocational training. Preparation for employment is to be considered as one of the major objectives during the school years. In a report published for the President's Panel on Mental Retardation (33:53), the panel stated that preparation for employment as a part of the curriculum was lacking. As a result of this lack in the curriculum, the retardate is poorly equipped for job training when he reaches adulthood, and by that time it is too late to overcome any handicaps that were allowed to accrue. The world of work is a very important aspect in the curriculum for the retarded and should not be overlooked.

Learning and Performance

A number of studies reported in the most recent Review of Educational Research (1963) which was dedicated to the Mentally Retarded compared learning ability

of the mentally retarded with that of normal children. Stevenson (41:1021-26) found no significant differences in learning speed between normal and retarded individuals matched on mental age. These results would suggest support that the mental age be used as a rough index of learning ability. Robert Zaslow (49:279-338) showed that on performance in a continuum sorting test the retarded subjects showed poor abstracting ability but had a greater compatibility with the mental age group than the chronological age group.

Rick Heber (13:63-70) in reviewing the literature on the educable mentally retarded in 1963, concluded that there were greater differences between mentally deficient subjects and their chronological age counterparts than between the mentally retarded and their mental age counterparts. Heber states that many of the studies used only the chronological age or the mental age controls rather than both. It is not possible to draw definite conclusions whether obtained differences in the study were functions of low mental age, low IQ, or low mental age plus low IQ where only one of the variables is controlled.

Summary

Studies of prevocational evaluation presented were concerned with the amount of knowledge of the world of work presented to the mentally retarded prior to their vocational training and choice of occupation. These studies show that it is very important for the mentally retarded to have the necessary help to guide them into jobs. It is also important that they have information about available work, and the importance of this work to the world.

Research pertaining to the concepts of occupations indicated that intelligence was directly related to knowledge and interests in occupations. Another study indicated that elementary children have a good general knowledge of the occupational world.

Vocational choices for the adolescent mentally retarded was investigated and it was found that only one-third of the subjects investigated made unrealistic choices. It was also stated that reading retardation may be related to immaturity of occupational choice.

In a series of reviews dealing with the teaching of occupations as a part of the curriculum it was re-

vealed that there were significant increases in the realism of plans made by students enrolled in an occupation course, and that those employed after high school were more satisfied with their jobs and tended to have higher earnings. Preparation for employment for the mentally retarded through occupations courses is to be considered as one of the major objectives during the school years.

Hoppock has described some of the failures and reasons for conflicting results in the teaching of occupations in the curriculum as being due in part to the competence of the instructor, the accuracy of the materials used, and the ability and interest of the students.

A number of studies dealing with the learning and performance of the mentally retarded suggest that there is support for use of the mental age as a rough index for learning.

The present study was designed to extend and implement previous investigations dealing with the mentally retarded and occupational information. This study follows the design used by Parker in his study of An Analysis of Children's Concepts of Selected Occupations.

The nature of the design, the statistical hypotheses and related problems, a description of the sample, and the instrumentation are presented in the next chapter.

CHAPTER III: DESIGN

The normative method was used as the system of investigation. Interviews with each of the subjects constituted the major technique for gathering the data concerning the children's understanding of the selected occupations. Data obtained from an analysis of the interviews were supplemented with information obtained from school records.

Study Sample

A total sample of 150 school children participated in the study during January, February, and March, 1965. Three groups of fifty children were randomly selected as subjects. One group consisted of fifty educable mentally retarded adolescents, one group consisted of fifty intellectually normal junior high school students of comparable chronological age, and one group of fifty intellectually normal elementary school

children of comparable mental age. These children were selected from public schools located in the northern area of the state of Illinois. The communities selected were, Rockford, DeKalb, Aurora and St. Charles, Illinois. These communities are located approximately thirty miles within a circle drawn with DeKalb, Illinois as the center.

Educable Mentally Retarded (EMH)

A sample of fifty educable mentally retarded school children was selected from Rockford, DeKalb, East Aurora, West Aurora, and St. Charles public school systems. The school systems involved in the study maintained special education classrooms in the public schools as specified by the Office of the Superintendent of Public Instruction, State of Illinois. Educable mentally handicapped is defined as:

> . . . children between the ages of 5 and 21 years who, because of retarded intellectual development as determined by individual psychological examination are incapable of being educated profitably and efficiently through ordinary classroom instruction. . . . This is generally interpreted to mean an IQ of 55 to 80 on an individual test of intelligence such as the Binet or Wechsler, except that other relevant factors must also be considered (17:42).

All educable mentally retarded subjects interviewed were classified as educable mentally handicapped in accordance with the School Code of Illinois (17:42), and with no other handicap as defined by the School Code as Physically Handicapped, Deaf and Hard of Hearing, Partially Seeing, Blind, or Maladjusted (17:7-38).

The sample of educable mentally retarded consisted of twenty-seven males and twenty-three females enrolled in the special classrooms in public schools and between the ages of 13 years to 15 years, 11 months. The mental age span was from 8 years to 12 years, 11 months. The mean chronological age was 175.94 months with a standard deviation of 8.28 months. The mean mental age was 124.76 months with a standard deviation of 13.28 months. The mean IQ of the group was 70.90 with a standard deviation of 7.56.

The Rockford school system maintains four classes at the junior high level for the educable mentally retarded. All four classrooms were visited and those students who were in the chronological and mental age span specified were interviewed. The East Aurora and West Aurora school systems each maintained one classroom for the junior high school educable mentally

retarded, as did the DeKalb and St. Charles school systems. From the total group interviewed, a final group of fifty students was randomly chosen.

Intellectually Normal Chronological Age (NCA)

A sample of fifty intellectually normal junior high school students was randomly chosen from the DeKalb Community School system and from the University Junior High School, Northern Illinois University, DeKalb, Illinois. Intellectually normal was defined as all junior high students enrolled in the regular classroom and not certified as educable mentally retarded by the State School Code of Illinois.

The sample of the intellectually normal chronological age group consisted of twenty-nine males and twenty-one females. The age span was from 13 years to 15 years, 11 months. The mean chronological age of the intellectually normal chronological age group (NCA) was 171.38 months with a standard deviation of 8.39 months. The mean mental age of the NCA group was 190.80 months with a standard deviation of 21.65 months. The mean IQ of the NCA group was 111.60 with a standard deviation of 12.91.

The intellectually normal chronological age

sample was randomly chosen from 656 eighth and ninth grade students enrolled in the DeKalb Junior High School in DeKalb and the University Junior High School in DeKalb. The DeKalb Junior High had 242 eighth grade students and 270 ninth grade students enrolled. The University Junior High had 73 eighth grade students and 71 ninth grade students enrolled.

Intellectually Normal Mental Age (NMA)

A sample of fifty intellectually normal elementary school students was randomly chosen from the DeKalb Community School system and from the University Elementary School, Northern Illinois University, DeKalb, Illinois. Intellectually normal elementary school students were defined as students enrolled in the regular classroom in a public elementary school and not certified as educable mentally retarded by the State School Code of Illinois.

The sample of the intellectually normal mental age group (NMA) consisted of twenty-one males and twenty-nine females. The mental age span was from eight years, to 12 years, 11 months. The mean chronological age of the NMA was 119.38 months with a standard deviation of 8.33 months. The mean mental age of the NMA was 131.62

months with a standard deviation of 14.03 months. The mean IQ of the NMA was 110.80 with a standard deviation of 12.79.

The intellectually normal mental age (NMA) sample was randomly chosen from 367 fourth and fifth grade students enrolled in the DeKalb Public Schools and the University Elementary School. The schools selected from the DeKalb School system were Glidden Elementary, Littlejohn Elementary, and Ellwood Elementary Schools. The DeKalb Elementary schools had 153 fourth grade students and 138 fifth grade students enrolled. The University Elementary School had 39 fourth grade students and 37 fifth grade students enrolled.

Basic data pertaining to the mental age, chronological age, and intelligence of the study sample is presented in Table 3.1.

Communities and Schools Involved

The community of Rockford, Illinois, is one of the larger cities in Illinois not including the Chicago metropolitan area, and located about 80 miles northwest of Chicago. The 1964 census figures indicate that Rockford's population is approximately 132,000 people.

TABLE 3.1. -- Means and Standard Deviations of the Mental Age, Chronological Age and Intelligence Quotient for the Study Sample

Factor	EMR[a] N=50 M	SD	NCA[b] N=50 M	SD	NMA[c] N=50 M	SD
M. A.	124.76	13.28	190.80	21.65	131.62	14.03
C. A.	175.94	8.28	171.38	8.39	119.38	8.33
I. Q.	70.90	7.56	111.60	12.91	110.80	12.79

[a]Educable Mentally Retarded [b]Normal Chronological Age
[c]Normal Mental Age

It has 568 manufacturing plants and 1330 retail establishments. The public school system has 35 grade schools, 5 junior high schools and 4 senior high schools (36). Rockford schools had a population of approximately 29,000 children in all of the public schools. The two junior high schools involved in the study had a student population of 654 and 662 (16:254-55). Both schools had two classrooms of junior high school age educable mentally retarded children. These classes were certified under the School Code of the State of Illinois as special education classrooms for the educable mentally handicapped.

Geneva, Illinois, is located approximately 35 miles west of Chicago and has a population of approximately 7,650. It is considered a residential town and lies in the Fox River Valley, which is partially agrarian in nature. The public school system has one high school, one junior high school and four elementary schools. There are approximately 2350 children enrolled in the Geneva schools. There is one class for the junior high mentally retarded children located in the junior high school. The junior high school has an enrollment of 372 (16:130). The special class for the mentally retarded is a state certified special education classroom for the mentally retarded.

The city of Aurora, Illinois, is located about 40 miles from Chicago and lies in the Fox River Valley. The population of Aurora is approximately 65,000. The city is divided into two school districts, one known as East Aurora and the other West Aurora. The East Aurora school district has a student population of 8,261 and West Aurora has a population of 8,292. Both districts have special education classes for the educable mentally retarded. East Aurora has a classroom for the educable mentally retarded in a junior high school with a total school enroll-

ment of 748 students. West Aurora has a classroom for the educable mentally retarded in a junior high school that has a total school enrollment of 543 (16:38-39). Both classrooms are certified by the state of Illinois as special education classrooms.

The city of DeKalb, Illinois, is located about 65 miles west of Chicago in an agrarian setting. The population of DeKalb is approximately 23,000. Northern Illinois University is located in DeKalb and has a student population of about 14,000. The school district is composed of one high school, one junior high school and seven elementary schools. The University maintains one elementary school and one junior high school as a department in the College of Education. The DeKalb school population is 3,915 with 534 in the junior high school (16:93). The University Schools have an enrollment of 550, with 225 enrolled in the junior high section. The city has one state certified special education classroom for the junior high educable mentally retarded. This classroom is located in the DeKalb Junior High School.

Selection of Occupational Classification System

A number of classification systems were reviewed for the selection of the representative occupations used

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in this study. The criteria established by Parker (29) in his study of children's concepts of occupations were used in the selection of the system for this study. The criteria developed by Parker include the following:

1. The occupational classification system should be representative of the total field of vocational activity.
2. The occupational classification system should have a logical organization based on the nature of the work performed or personal qualities important to success in specific occupations.
3. The occupational classification system should have a limited number of occupational areas.
4. The occupational classification system should provide for the classification of specific occupations within the major areas.
5. The occupational classification system should be less complex than the classification system used in the Dictionary of Occupational Titles but should provide a cross reference to that source.
6. The occupational classification system should

not have a social status connotation as does the classification system used in the Dictionary of Occupational Titles.

7. The occupational classification system should be related to organized sources of occupational information.
8. The occupational classificational system should have potential application in similar research projects or follow-up studies.

The classification system adopted by Parker and used in this study was the Brainard Occupational Preference Inventory (3). The manual for the Brainard inventory listed 378 occupations, which were divided into seven broad areas. The seven major areas listed by Brainard were:

Area I Commercial
Area II Personal Service
Area III Agriculture
Area IV Mechanical
Area V Professional
Area VI Esthetic
Area VII Scientific

Selection of Occupations for Study

The fourteen occupations selected for this study were used by Parker (29) in his study and chosen as representative of the seven major areas of occupations selected. The following criteria were developed by Parker to facilitate the selection of the fourteen occupations:

1. The selected occupations should be representative of all major occupational areas.
2. The selected occupations should be well-known occupations.
3. The selected occupations should not favor boys or girls in terms of opportunity for knowledge of the occupations.
4. The selected occupations should be related to organized sources of occupational information.

The Science Research Associates, Inc., supplied the latest editions of occupational briefs, which are a part of the Career Information Kit (38). The occupational briefs provided the information regarding the background for each of the selected occupations.

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The following occupations were selected for the study:

Area I Commercial
Secretary
Insurance salesman

Area II Personal Service
Cook
Barber

Area III Agriculture
Dairy farmer
Poultryman

Area IV Mechanical
Automobile mechanic
Carpenter

Area V Professional
Dentist
Teacher

Area VI Esthetic
Actor
Musician

Area VII Scientific
Pharmacist
Weatherman

Instrumentation

The interview form developed by Parker (39) was selected for use in this study. Parker's interview form was formulated to provide a thorough inquiry into the nature of children's concepts of selected occupations and to ascertain the breadth and depth of understanding they possessed in regard to specific aspects of these occupations.

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Interview Form

Fifteen questions were formulated by Parker (39) in regard to the selected occupations and were used in five trial interviews with elementary children in third and fifth grade. As a result of the trials, the final draft of the interview form was composed of twelve questions. These questions were grouped into three general categories of job family information, job differentiation, and social implications of the job. This division of questions provided structural unity for the interview form and provided the major focus of the study. The following twelve questions developed by Parker (39) made up the interview form:

General Job Family Information

1. What does a _____ do in (his or her) work?
2. Where does a _____ do (his or her) work?
3. When does a _____ do (his or her) work?
4. What are some other jobs that are very much like a _____ ?

Job Differentiation

5. What kinds of abilities or skills are needed to become a _____ ?
6. What might be especially pleasant about being a _____ ?
7. What might be especially unpleasant about being a _____ ?
8. What kind of training does a person need to become a _____ ?

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Social Implications of Job

9. How does a _____ help other people with (his or her) work?
10. How does a _____ get (his or her) first job?
11. What kind of feelings do other people usually have toward a _____ ?
12. How do the earnings of a _____ compare with other jobs that you know about?

A subordinate aspect of this study was to determine the vocational preferences of the educable mentally retarded adolescents with regard to the selected occupations presented in the study. The following questions were asked after the interview form had been completed:

1. Which of the jobs that we have talked about would you like to do best?

2. Which of the jobs that we have talked about would you like to do least?

The interview form was supplemented by a photograph of a person actively engaged in the work activities for each of the fourteen selected occupations. The pictures were black and white prints finished in a 5" x 7" size, mounted on a 8" x 10" mounting and placed in a notebook. A photograph representing the occupation was presented prior to each job interview and placed before the subject so as to minimize any possibility of faulty job recognition by name or title alone. The pictures were arranged in the notebook by random order prior to each interview.

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The Interview Kit

All necessary materials were placed in kit form in order to facilitate and standardize the interview procedure. The kit contained the following:

1. A large notebook with the photographs of people engaged in each of the fourteen occupations
2. The interview form
3. A list of instructions and procedures for presentation
4. An interview record card
5. A list of the subjects to be interviewed

The instructions and procedures for presentation were prepared as follows:

Part I

(Name of student), I am going to show you some pictures of people that do different kinds of work for a living. As I show you each picture, I will tell you the kind of work the person in the picture does for a living. I am sure you know some things about the kinds of work these people do, and with each picture I will ask you several questions. Do you understand what we are going to do?

Part II (After the interview is finished)

Which of the jobs that we have talked about would you like to do best?

Which of the jobs that we have talked about would you like to do least?

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The interview record card provided space for recording pertinent data regarding the subject. The card contained the following data for each subject: (1) name, (2) address, (3) father and mother's name, (4) occupation and place of occupation for parent, (5) school cumulative information regarding testing record, (6) name of school, (7) date and score of IQ test, (8) date of birth, (9) summary of the mean scores for each of the occupations interviewed, and (10) name of occupation most and least preferred. A copy of the interview record card is presented in Appendix A.

Collection of School Data

The school records for each subject in the sample was inspected prior to the interviews. The school records provided the following information: (1) birthdate, (2) grade, (3) sex, (4) name of mental ability test, (5) score and date of mental ability test, (6) parent's names and address, (7) parent place of employment, and (8) parent occupation.

Mental ability test scores for the two intellectually normal groups were obtained from the California Short-Form Test of Mental Maturity. This test was designed to sample mental maturity in logical reasoning,

numerical reasoning, verbal concepts, and memory. It also reported the scores for language and non-language factors. The split-half reliability coefficient (Spearman-Brown formula) was reported by the test authors to be .92 for the total test. Studies have been reported that show correlations between the California Test of Mental Maturity and the Stanford-Binet in the range from .74 to .88 and above (42:1-32).

Mental ability test scores for the educable mentally retarded were taken from the Stanford-Binet (45) and Wechsler Intelligence Scale for Children (47). The use of either the Wechsler Intelligence Scale for Children or the Stanford-Binet is required by state regulations, for the placement of the educable mentally handicapped in a certified special education classroom (17:42).

Since the testing programs for the schools and individuals were administered at different times during the school year, the mental age scores were obtained from the school records and adjusted to correspond to the beginning of the interview period, January 1, 1965. The following formula was used to determine the mental age:

$$\text{M.A. (months)} = \frac{\text{C.A. (months)} \times \text{I.Q.}}{100}$$

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Collection of Interview Data

The interview was conducted with 150 school children at the elementary and junior high school levels. Fifty of the subjects were junior high educable mentally retarded adolescents, fifty of the subjects were in the fourth and fifth grades of public school systems, and fifty of the subjects were public school junior high school students. All of the interviews were conducted in small conference rooms with minimum of outside disturbance. All of the interviews were administered in two sessions of approximately 45 to 50 minutes each because of the length of time for the total interview and to keep the attention of the subject.

The interviews were conducted in accordance with the procedures described in the instructions for interviews. The first session of Part I of the interview involved questions regarding seven occupations, secretary, cook, poultryman, automobile mechanic, teacher, musician, and weatherman. The second session of Part I of the interview, which was given the next day, involved questions regarding the other seven occupations of insurance man, barber, dairy farmer, carpenter, dentist, actor, and pharmacist. Part II of the interview regarding the

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occupations best and least liked was administered after the second session of Part I of the interview form was concluded.

The pictures for each of the selected occupations were shuffled before each interview, and in this manner the occupations were presented to each of the subjects in a random order. During the interview sessions, each subject was encouraged to tell as much as he could about each phase of the occupation. The answers were taken down on the interview sheet as near verbatim as possible.

Treatment of Interview Data

The responses to the interview questions were recorded on separate interview sheets and each question was rated on a continuum of increasing information and social insight.

The levels of rating are defined as follows:

1. Level 1: Responses which indicated the absence of a concept or misconception regarding specific aspects of an occupation.
2. Level 2: Responses which indicated recognition of a single specific aspect of an occupation.
3. Level 3: Responses which indicated general knowledge of an occupation.

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4. Level 4: Responses which indicated an understanding of general social relationships involved in the occupation as well as general knowledge of the occupation.

The following statement of criteria, developed by Parker (29:67-71), provided a guide to the determination of the levels of understanding:

1. What does a _____ do in (his or her) work?

   Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific occupational task.

   Level 2: Indicates recognition of a specific occupational task.

   Level 3: Indicates knowledge of general occupational tasks.

   Level 4: Indicates understanding of the general occupational tasks performed for other people.

2. Where does a _____ do (his or her) work?

   Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific work environment for the occupation.

   Level 2: Indicates recognition of specific work environment for the occupation.

   Level 3: Indicates knowledge of the general work environment for the occupation.

Level 4: Indicates understanding of the general work environment for the occupation in relationship to the services performed by and for other people.

3. When does a _____ do (his or her) work?

Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific work period for the occupation.

Level 2: Indicates recognition of a specific work period for the occupation.

Level 3: Indicates knowledge of the general work schedule for the occupation.

Level 4: Indicates understanding of the general work schedule for the occupation in relationship to the needs of other people.

4. What are some other jobs that are very much like a _____ ?

Level 1: No answer; "I don't know"; or fails to indicate recognition of a job family relationship in which the same occupational tasks or services are performed.

Level 2: Indicates recognition of a job family relationship in which the same occupational tasks or services are performed.

Level 3: Indicates knowledge of a job family relationship in which the same general occupational tasks or services are performed.

Level 4: Indicates understanding of a job family relationship in which the same occupational tasks or services are performed for other people.

5. What kinds of abilities or skills are needed to become a _____ ?

   Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific ability or skill required for the occupation.

   Level 2: Indicates recognition of a specific ability or skill required for the occupation.

   Level 3: Indicates knowledge of the general abilities or skills required for the occupation.

   Level 4: Indicates understanding of the general abilities or skills required for the occupation in relationship with other people.

6. What might be especially pleasant about being a _____ ?

   Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific aspect of the occupation that provides a pleasant feeling.

   Level 2: Indicates recognition of a specific aspect of the occupation that provides a pleasant feeling.

   Level 3: Indicates knowledge of the general aspects of the occupation that provide pleasant feelings.

   Level 4: Indicates understanding of the general aspects of the occupation that provide pleasant feelings in relationship with other people.

7. What might be especially unpleasant about being a _____ ?

   Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific aspect of the occupation that provides an unpleasant feeling.

   Level 2: Indicates recognition of a specific aspect of the occupation that provides an unpleasant feeling.

   Level 3: Indicates knowledge of the general aspects of the occupation that provide unpleasant feelings.

   Level 4: Indicates understanding of the general aspects of the occupation that provide unpleasant feelings in relationship with other people.

8. What kind of training does a person need to become a _____ ?

   Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific aspect of the training required for the occupation.

   Level 2: Indicates recognition of a specific aspect of the training required for the occupation.

   Level 3: Indicates knowledge of the general aspects of the training required for the occupation.

   Level 4: Indicates understanding of the general aspects of the training provided by other people or social agencies that is required for the occupation.

9. How does a _____ help other people with (his or her) work?

Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific occupational service.

Level 2: Indicates recognition of a specific occupational service.

Level 3: Indicates knowledge of the general occupational services.

Level 4: Indicates understanding of the general occupational services performed for other people.

10. How does a _____ get (his or her) first job?

Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific aspect of the process of obtaining a position in the occupation.

Level 2: Indicates recognition of a specific aspect of the process of obtaining a position in the occupation.

Level 3: Indicates knowledge of the general process of obtaining a position in the occupation.

Level 4: Indicates understanding of the relationships with other people or social agencies in the general process of obtaining a position in the occupation.

11. What kind of feelings do other people usually have toward a _____ ?

Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific feeling toward a person engaged in the occupation.

Level 2: Indicates recognition of a specific feeling toward a person engaged in the occupation.

Level 3: Indicates knowledge of the services provided as a basis for general feelings toward a person engaged in the occupation.

Level 4: Indicates understanding of the services provided and relationships with other people as a basis for general feelings toward a person engaged in the occupation.

12. How do the earnings of a _____ compare with other jobs that you know about?

Level 1: No answer; "I don't know"; or fails to indicate recognition of a specific standard of earnings for the occupation.

Level 2: Indicates recognition of a specific standard of earnings for the occupation.

Level 3: Indicates knowledge of the services provided as a basis for the general standard of earnings for the occupation.

Level 4: Indicates understanding of the services provided and relationships with other people as a basis for the general standard of earnings for the occupation.

Vocational Preferences

Vocational preferences from the fourteen selected occupations as given by the subjects were indicated on the interview record card. The responses were then arranged in rank order of preference, from the most chosen occupation to the least chosen occupation. The most pre-

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ferred and least preferred occupations were both ranked in order of preference. An analysis was made of the level of understanding of the occupations most and least preferred as compared to the level of understanding attained by the subjects.

Level of Understanding

The criteria for determining the level of understanding for each of the occupations was developed by Parker (39). Parker's pilot study contained children's responses to the questions for the fourteen selected occupations. A list of the responses was compiled by Parker and submitted to a panel of three judges along with copies of the statement for determining the levels of understanding of occupations. One of the judges was an experienced elementary school teacher and had participated in the preparation of occupational materials for use in the intermediate grades. Another judge was an experienced guidance counselor who had also taught classes in occupational information at the college level, and the other judge was Parker (39:75).

In evaluating the interview responses of the subjects, the judges were instructed to give a credit of one point for a response rated as Level 1, two points for

a response rated as Level 2, three points for a response rated as Level 3, and four points for a response rated as Level 4. A maximum score for each occupation was forty-eight points.

The total score for each of the seven major occupational areas was obtained by adding the scores for the two occupations representing the occupational area. The sum of the scores for the seven occupational areas provided a measure of the total level of understanding of occupations attained by the children in the study.

The range of points for each of the levels for the occupational areas which indicate the expressed level of understanding are as follows:

Level 1: 0 - 24 points

Level 2: 25 - 48 points

Level 3: 49 - 72 points

Level 4: 73 - 96 points

The null hypothesis that there are no significant differences in the mean scores granted by the three qualified judges in evaluating the fourteen occupations in the pilot study was formulated. The mean differences granted by the three judges were tested for significance through calculation of critical ratios. The obtained t

scores were .03, 1.17 and 1.19. A t score of 2.00 or larger would occur not more than once in twenty, and a score of 2.66 would occur not more than once in a hundred trials when the null hypothesis is true (39:76).

The obtained t ratios were smaller than the .01 or .05 levels thus retaining the null hypothesis that there were no significant differences in the mean scores granted by the judges. It was also assumed that the instruments employed in the evaluation process were reliable and that competency in evaluating the interview responses was attained. Scoring for the study sample was carried on in the same manner as in the pilot study.

The following responses from Parker's study (29) are considered as illustrative of the four levels of understanding as applied to one of the selected occupations:

Teacher

1. What does a teacher do in his work?

   Level 1: Helps

   Level 2: Teaches

   Level 3: Teaches reading and arithmetic

   Level 4: Teaches children to read and write

2. Where does a teacher do his work?

   Level 1: Anywhere

   Level 2: Building

   Level 3: School or classroom

   Level 4: In a classroom where he teaches kids

3. When does a teacher do his work?

   Level 1: All the time

   Level 2: In the morning and afternoon

   Level 3: Weekdays or school days

   Level 4: When the children come to school

4. What are some other jobs that are very much like a teacher?

   Level 1: Factory worker

   Level 2: Secretary

   Level 3: Minister

   Level 4: Other people that teach us things

5. What kinds of abilities or skills are needed to become a teacher?

   Level 1: Go to college

   Level 2: Know how to handle children

   Level 3: Know how to read and write

   Level 4: How to answer children's questions and handle children in class

6. What might be especially pleasant about being a teacher?

   Level 1: Get paid

   Level 2: Learn a lot of things

   Level 3: Teaching reading and arithmetic

   Level 4: The children like you and like the way you teach

7. What might be especially unpleasant about being a teacher?

   Level 1: Nothing

   Level 2: When the kids are noisey

   Level 3: You have a lot of meetings and have to work late

   Level 4: The children might not like you and make trouble in the room

8. What kind of training does a person need to become a teacher?

   Level 1: Learn

   Level 2: Go to college

   Level 3: Know different subjects and how to teach children

   Level 4: Study many subjects in college and how to teach children

9. How does a teacher help other people with his work?

   Level 1: Learns

   Level 2: Teaches how to do things

   Level 3: Teaches reading, writing and spelling

   Level 4: Helps children learn things to use later in life

10. How does a teacher get his first job?

    Level 1: Studies

    Level 2: Goes to college

    Level 3: Does practice teaching

    Level 4: Goes to the principal or school board and asks about a job

11. What kind of feelings do other people usually have toward a teacher?

    Level 1: Lots

    Level 2: Good feelings

    Level 3: They are nice and teach good

    Level 4: If he is a good teacher people will like him and be friends

12. How do the earnings of a teacher compare with other jobs that you know about?

    Level 1: No money

    Level 2: Not too much money

    Level 3: Good -- if he is a good teacher

    Level 4: Compares with the principal, but not as much as a scientist

A summary list of typical responses for each of the fourteen occupations at each of the levels of understanding for each question of the interview for this study is located in Appendix B.

Evaluation of Responses Among Groups

The null hypothesis that there are no significant differences in the mean scores of the three groups for the seven occupational areas was presented. The analysis of variance to test the means of the responses of the three groups for the seven major areas of occupations made it possible to test for interactions between the groups. In this manner it was possible to determine if the interview questions were biased toward any of the groups tested. The groups involved were fifty educable mentally retarded adolescents in a special junior high school classroom, fifty intellectually normal junior high school students in public school systems, and fifty intellectually normal elementary school children in the fourth and fifth grades of public elementary schools. Data pertaining to the interaction is presented in Table 3.2.

The variance ratio was found to be 1.27 with 12 and 1029 degrees of freedom. For these degrees of freedom, a variance ratio of 1.75 or larger would occur not more than once in twenty trials when the null hypothesis is true (7:367). No satisfactory evidence was produced to indicate the groups reacted differently in answering among the different occupational areas.

TABLE 3.2. -- Analysis of Variance of Students' Mean Scores for Seven Occupational Areas and Interaction of Groups and Occupational Areas

Source of Variation	df	Sum of Squares	Mean Square	F
Groups	2	18731.98	9365.99	
Areas	6	4195.79	699.29	
Interaction	12	874.53	72.88	1.27[a]
Within	1029	59207.32	57.54	
Total	1049	83009.32		

[a] F (12, 1029) = 1.75 at .05 level of significance

Since the obtained variance ratio for interaction was not significant, the null hypothesis that there were no significant differences in the mean scores of the levels of understanding among the three groups involved was retained.

Statistical Hypotheses

The null hypotheses stated are related to the nature of educable mentally retarded adolescents' level of understanding of selected occupations and selected occupational areas.

1. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general chronological age in the seven major areas of occupations.
2. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general mental age in the seven major areas of occupations.
3. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescent children in the seven major areas of occupations.
4. There are no significant differences in the relationships in the expressed levels of understanding among the educable mentally retarded adolescent children in each of the seven major areas of occupations and their chronological age.
5. There are no significant differences in the relationships in the expressed levels of understanding among the educable mentally retarded adolescent children in each of the seven major areas of occupations and their mental age.

In addition to the stated hypotheses, the vocational preferences of the adolescent educable mentally retarded children were investigated. The following questions were proposed:

1. What selected occupations are most preferred and least preferred by adolescent educable mentally retarded children?
2. What general level of expressed understanding has been attained by adolescent educable mentally retarded children with regard to the selected occupations they most and least prefer?

The following questions are proposed in that they help determine the level of expressed understanding of occupations by the educable mentally retarded as related to their parents' occupational area.

1. What general level of expressed understanding has been attained by adolescent educable mentally retarded children for each of the selected occupational areas?
2. What general level of expressed understanding of occupations has been attained by adolescent educable mentally retarded children in their fathers' occupational areas?

Analysis Procedures

The responses made by children to the questions in the interview were rated on a continuum from a low of one point for an answer which indicated an absence of a concept, or a misconception, to a high of four points which indicated an understanding of general social relationships involved in the occupation as well as a general knowledge of the occupation. A quantitative score was established for each subject's understanding of the fourteen selected occupations by totalling the point credits given for each level of response to the interview questions. By this method it was possible to establish scores for the level of understanding for each of the seven major occupational areas and the total level of understanding of occupations expressed by the subjects in the study.

Analysis of Hypotheses

The null hypotheses formulated for the study with respect to significant differences in the expressed levels of understanding for the subjects in the seven major areas of occupations were tested using the statistical procedure of analysis of variance. The acceptable

level of significance used in this study was .05. Where higher levels of significance were obtained, it was so indicated.

The analysis of variance was designed to provide an efficient test of the significance of differences between two or more groups simultaneously. It consists of contrasting the variance of individual values around the group means within equal-sized groups with the variance of the group means around the general mean of the ungrouped data (48:172).

The value of analysis of variance in testing experimental hypotheses is most strikingly demonstrated in those problems in which the significance of the differences among several means is desired (10:273). The model most appropriate for determining the significance of the difference between means found in this study is the analysis of variance.

Duncan's new multiple range test was used in making multiple comparisons among the separate means. Duncan's test tends to investigate the differences that exist between a set of k means, and indicates if significant differences exist between some of the means and not between others (7:136).

The nature of the relationships between the educable mentally retarded subject's level of understanding of the seven major occupational areas and their mental age and chronological age were expressed by the product moment coefficient of correlation.

Analysis of Related Questions

The vocational preferences of the adolescent mentally retarded subjects were tallied and placed in rank order. Both the most preferred and least preferred occupations were listed in order from the highest to the lowest ranking. The general level of expressed understanding attained by the subjects for each of the occupations ranked was also computed. Further analysis of the data provided information regarding the occupational areas of the fathers of the educable mentally retarded subjects.

The IBM 1620 II computer located at Northern Illinois University, DeKalb, Illinois, was used in the statistical treatment of the data. The programs utilized were the Analysis of Variance program, IBM Library number 1620-06.0.090, and the Coefficient of Correlation program, Northern Illinois University Library number 505, prepared by Clyde Givens, Director of the Computer Center.

Summary

Procedures used in the investigation of the study were described. The normative method of investigation was used with the data obtained from an analysis of "responses to" interview questions.

The study sample consisted of 150 public school children selected from the northern area of the state of Illinois. Three groups of fifty children each were randomly selected as subjects. A sample of fifty educable mentally retarded adolescents made up the group under observation. Two control groups, one with fifty intellectually normal junior high school students of comparable chronological age, and the other group of fifty intellectually normal elementary children from grades four and five of comparable mental age were involved in the study.

The procedures used in collecting data from the school records were stated. The occupational classifications were described and the criteria for selection was examined. The fourteen occupations selected for the study were listed and the criteria for their selection was presented.

A description of the interview form and materials used in the study was presented. The collection and treatment of interview data was discussed and the reliability of the interview form was established. The statistical hypotheses were stated and a discussion of the models used in the study was presented.

The next chapter contains an analysis of the data and a discussion and interpretation of the data obtained in the study.

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CHAPTER IV: ANALYSIS OF RESULTS

An analysis and interpretation of the data pertaining to the nature of educable mentally retarded adolescents' level of understanding of fourteen selected occupations are presented in this chapter. Data obtained from an analysis of the interviews and the supplementary information obtained from the school records are discussed.

The purpose of this study was to investigate the nature of educable mentally retarded adolescent children's expressed level of understanding of selected occupations as compared to intellectually normal children of comparable general chronological and mental ages. Subordinate problems investigated were: (1) the relationships between expressed level of understanding of selected occupations by educable mentally retarded adolescents and their chronological and mental ages; and (2) the vocational preferences of the educable mentally re-

tarded adolescents with regard to the selected occupations presented in the study.

Data for Tests of the Hypotheses

The hypotheses stated are related to the nature of educable mentally retarded adolescents' level of understanding of selected occupational areas and of selected occupations.

Hypothesis 1.

The first hypothesis stated that there are no significant differences between the expressed levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general chronological age in the seven major areas of occupations. Table 4.1, indicates the educable mentally retarded adolescents' scores ranged from 55.38 in the Professional area to 47.40 in the Agricultural area. The intellectually normal children of comparable general chronological age scores ranged from 64.64 in the Professional area to a low of 57.92 in the area of Agriculture.

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TABLE 4.1. -- Rank Order of Subjects' Mean Scores of Occupational Interview Form for Each of the Seven Occupational Areas

Occup. Area[a]	EMR[b] M	EMR[b] Rank	NCA[c] M	NCA[c] Rank	NMA[d] M	NMA[d] Rank
I	48.76	6	63.50	2	55.06	6
II	53.20	2	62.28	3	57.98	2
III	47.40	7	57.92	7	54.68	7
IV	50.72	3	60.90	4	56.78	3
V	55.38	1	64.64	1	60.18	1
VI	50.02	5	59.68	5	56.10	5
VII	50.14	4	58.84	6	56.44	4
Total	50.80		61.11		56.75	

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, VII Scientific

[b]Educable Mentally Retarded [c]Normal Chronological Age

[d]Normal Mental Age

The analysis of variance was used to test the significance of differences between the mean scores of the educable mentally retarded adolescents and the intellectually normal children of comparable general chronological age. Data for the analysis of variance are presented in Table 4.2. The variance ratio was found to be 74.43 with 1 and 98 degrees of freedom. For these degrees of freedom, a variance ratio of 6.90 or larger would occur not more than once in a hundred trials when the null hypothesis is true (7:367).

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TABLE 4.2. -- Analysis of Variance of the Educable Mentally Retarded Subjects' and Normal Chronological Age Subjects' Mean Scores of Occupational Interview Form for the Seven Occupational Areas

Source of Variation	df	Sum of Squares	Mean Squares	F
Between	1	130104.49	130104.49	74.43[a]
Within	98	171340.90	1748.38	
Total	99	301445.39		

[a] F (1, 98) = 6.90 at .01 level of significance

Since the obtained variance ratio of 74.43 was significant at the .01 level, the null hypothesis was rejected and the conclusion that the levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general chronological age in the seven major areas of occupations did differ significantly. Analysis of variance tables for each of the occupational areas are found in Appendix C.

Hypothesis 2.

The second hypothesis stated that there are no significant differences between the expressed levels of

understanding of educable mentally retarded adolescents and intellectually normal children of comparable general mental age in the seven major areas of occupations. Table 4.3 presents the analysis of variance used to test the significance of differences between the mean scores obtained from the educable mentally retarded adolescents and the intellectually normal children of comparable general mental age.

TABLE 4.3. -- Analysis of Variance of the Educable Mentally Retarded Subjects' and Normal Mental Age Subjects' Mean Scores of the Occupational Interview Form for the Seven Occupational Areas

Source of Variation	df	Sum of Squares	Mean Squares	F
Between	1	43681.00	43681.00	18.90[a]
Within	98	226475.96	2310.98	
Total	99	270156.96		

[a] F (1, 98) = 6.90 at .01 level of significance

The variance ratio was found to be 18.90 with 1 and 98 degrees of freedom. For these degrees of freedom, a variance ratio of 6.90 or larger would occur not more than once in a hundred trials when the null hypothesis is true (7:367).

Since the obtained variance ratio of 18.90 was significant at the .01 level, the null hypothesis was rejected and the conclusion drawn that the levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general mental age in the seven major areas of occupations did differ significantly.

Hypothesis 3.

The third hypothesis stated that there are no significant differences in the expressed levels of understanding of educable mentally retarded adolescent children in the seven major areas of occupations. Table 4.4 presents the analysis of variance used to test the significance of differences between the mean scores of the educable mentally retarded subjects in the seven major occupational areas. Analysis of variance tables for each of the other two control groups can be found in Appendix C.

The variance ratio was found to be 5.24 with 6 and 343 degrees of freedom. For these degrees of freedom, a variance ratio of 2.85 or larger would occur not more than once in a hundred trials when the null hypothesis is true (7:367).

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TABLE 4.4. -- Analysis of Variance of the Educable Mentally Retarded Subjects' Mean Scores of the Occupational Interview Form for the Seven Occupational Areas

Source of Variation	df	Sum of Squares	Mean Squares	F
Between	6	2175.42	362.57	5.24[a]
Within	343	23705.98	69.11	
Total	349	25881.40		

[a] F (6, 343) = 2.85 at .01 level of significance

Since the obtained variance ratio of 5.24 was significant at the .01 level, the null hypothesis was rejected and the conclusion drawn that the levels of understanding of educable mentally retarded adolescents in the seven major areas of occupations did differ significantly. Tables of analysis of variance for each of the control groups are to be found in Appendix C.

Duncan's new multiple range test was used in testing the separate mean score differences for the educable mentally retarded. Duncan's test was designed to make multiple comparisons among the treatment means. The means are first arranged in order of magnitude and identified by number. The standard error of a single

mean is then found by dividing the square root of the error mean square (within group's mean square) by the square root of the number of observations on which the mean is based. Table values of significant studentized ranges for a given number of degrees of freedom and mean differences are then multiplied by the standard error of the mean to obtain the values of shortest significant ranges for a given number of mean differences. The differences between the pairs of mean are then tested in order of largest minus the smallest, largest minus the second smallest and continued until all possible comparisons are made. Then the process is repeated for the second largest mean, and the third largest and is continued until all means have been compared. The means are then ranked in order of magnitude, the difference between pairs must exceed the shortest significant range for the given range between means in order to be significant (7:136-40).

The shortest significant ranges in Table 4.5 were determined with 343 degrees of freedom and seven mean differences. The table values of significant studentized ranges for the Duncan test were multiplied by the standard error of the mean ($S_{\bar{X}}$ = 1.16) to obtain the shortest significant ranges.

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The testing of mean differences with the Duncan test revealed that the differences between six pairs among the twenty-one pairs of means were significant at the .01 level. Differences as large as those obtained might be expected in positive or negative directions only once in one hundred trials when the null hypothesis is true.

The highest mean score of 55.38 in the professional occupational area was significantly higher than the obtained mean scores in all areas except that of personal service. The mean of 53.20 for personal service was significantly higher than that of only the agricultural area.

Hypothesis 4.

The fourth hypothesis stated that there were no significant differences in the expressed levels of understanding among the educable mentally retarded adolescent children in each of the seven major areas of occupations and their chronological age. The product-moment coefficients of correlation were calculated between the subjects' chronological age and their levels of understanding in each of the seven occupational areas.

TABLE 4.5. -- Duncan's New Multiple Range Test Applied to the Differences between the Educable Mentally Retarded Subjects' Mean Scores of the Occupational Interview Form for the Seven Occupational Areas

Occupational Area Mean[a]	(1) III 47.40	(2) I 48.76	(3) VI 50.02	(4) VII 50.14	(5) IV 50.72	(6) II 53.20	(7) V 55.38	Shortest Signif. (.01) Range $S_{\bar{x}}$=1.16
(1) 47.40 III		1.36	2.62	2.74	3.32	5.80	7.98	R_2 = 4.23
(2) 48.76 I			1.26	1.38	1.96	4.44	6.62	R_3 = 4.40
(3) 50.02 VI				0.12	0.70	3.18	5.36	R_4 = 4.52
(4) 50.14 VII					0.58	3.06	5.24	R_5 = 4.61
(5) 50.72 IV						2.48	4.66	R_6 = 4.69
(6) 53.20 II							2.18	R_7 = 4.75

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

Note: Read down the columns from right side. Differences in paired means are significant above ruled lines in columns. Read across rows from the left side. Differences in paired means are significant on the right side of the ruled lines in rows.

Data with regard to the relationships between the subjects' chronological age and their levels of understanding in each of the seven occupational areas are presented in Table 4.6. Correlation tables for the control groups will be found in Appendix C.

TABLE 4.6. -- Coefficients of Correlation Between Educable Mentally Retarded Subjects' Chronological Age and Mean Scores of the Occupational Interview Form for the Seven Occupational Areas

Occup. Area[a]	M	SD	r	Signif. Level
I	48.76	7.96	-.013	-
II	53.20	8.11	-.078	-
III	47.40	8.09	.022	-
IV	50.72	7.58	-.187	-
V	55.38	9.68	.004	-
VI	50.02	8.23	-.066	-
VII	50.14	8.38	.053	-

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

The significance of the obtained correlations was tested against the null hypothesis that the population coefficient correlation is zero. With 48 degrees of freedom for the educable mentally retarded sample, only five times in a hundred would a positive

or negative correlation as high as .279 appear if the population r were zero, and only once in a hundred times would a positive or negative r as large as .361 appear (10:200).

The data presented with regard to the relationships between the subjects' chronological age and their levels of understanding in the seven occupational areas shows no correlation.

Hypothesis 5.

The fifth hypothesis stated that there were no significant differences in the relationships among the expressed levels of understanding of the educable mentally retarded adolescent subjects in each of the seven major areas of occupations and their mental age. The product-moment coefficients of correlation were calculated between the subjects' mental age and their levels of understanding in each of the seven occupational areas and presented in Table 4.7.

The significance of the obtained correlations were tested against the null hypothesis that the populations coefficient of correlation is zero. With 48 degrees of freedom for the educable mentally retarded sample, only five times in a hundred would a positive

TABLE 4.7. -- Coefficients of Correlation Between Educable Mentally Retarded Subjects' Mental Age and Mean Scores of the Occupational Interview Form for each of the Seven Occupational Areas

Occup. Area[a]	M	SD	r	Signif. Level
I	48.76	7.96	.140	-
II	53.20	8.11	.249	-
III	47.40	8.09	.357	.05
IV	50.72	7.58	.325	.05
V	55.38	9.68	.106	-
VI	50.02	8.23	.313	.05
VII	50.14	8.38	.225	-

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

or negative correlation as high as .279 appear if the population r were zero, and only once in a hundred times would a positive or negative r as large as .361 appear (10:200).

The data presented with regard to the relationships between the subjects' mental age and their levels of understanding in the seven occupational areas showed the areas of Agriculture, Mechanical and Esthetic to be significant at the .05 level. Control group tables of correlation are found in Appendix C.

Data for Vocational Preferences

The vocational preferences of the adolescent educable mentally retarded subjects were investigated. As a measure of the subjects' attitudes toward the fourteen selected occupations, they were asked which of the fourteen selected occupations they would most like to do, and which they would least like to do. Data pertaining to the questions are presented in this section of the chapter.

Question 1.

What selected occupations are most preferred and least preferred by the adolescent educable mentally retarded children?

Table 4.8 indicates that the most preferred occupations of the educable mentally retarded subjects were Secretary, Auto Mechanic, Teacher, Carpenter, and Cook in order of choice.

The least preferred occupations were Dentist, Dairy Farmer, Teacher, Weatherman, and Cook in order of choice.

It is to be noted that the occupations of Teacher and Cook were among the first five choices in both the most preferred and least preferred chosen by the educable

TABLE 4.8. -- Rank Order of Educable Mentally Retarded Subjects' Most and Least Preferred Occupations

Occupation	Most Preferred	Least Preferred	Rank Order Most Preferred	Rank Order Least Preferred
Secretary	11	3	1	7.5
Cook	5	4	5	5
Poultry Farmer	2	1	8.5	11
Auto Mechanic	8	3	2	7.5
Teacher	7	7	3	3
Musician	3	1	6.5	11
Weatherman	3	5	6.5	4
Insurance Man	1	3	11	7.5
Barber	1	0	11	-
Dairy Farmer	1	9	11	2
Carpenter	6	3	4	7.5
Dentist	0	10	-	1
Actor	0	0	-	-
Pharmacist	2	1	8.5	11

mentally retarded adolescents. Rank order of the occupations most and least preferred by the two control groups can be found in Appendix C.

Question 2.

What general level of expressed understanding had been attained by the educable mentally retarded subjects in the occupational areas they most and least preferred?

Table 4.9 indicates that the largest number of subjects preferred occupational areas that were ranked among the lowest of the mean scores.

TABLE 4.9. -- Rank Order of the Educable Mentally Retarded Subjects' Mean Scores of the Occupation Interview Form for the Most and the Least Preferred Occupational Areas

Occup. Area[a]	Most Preferred N	M	Rank	Least Preferred N	M	Rank
I	12	49.66	6	6	45.16	7
II	6	56.50	1	4	56.00	2
III	3	48.00	7	10	49.90	4
IV	14	51.21	5	6	47.16	5
V	7	52.57	4	17	55.41	3
VI	3	53.33	3	1	57.00	1
VII	5	54.80	2	6	46.33	6

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

In terms of the criteria and scoring procedure used in the study, the total mean score of the Occupation Interview Form for the seven occupational areas obtained by the educable mentally retarded subjects was 50.80 as indicated in Table 4.1. All but one of the most preferred occupational areas were above the total mean score for the Occupation Interview Form.

The largest number of educable mentally retarded subjects chose occupations for the least preferred ranking that were in the middle of the rank order scale. However, only the top three ranked scores were above the total mean of the educable mentally retarded scores obtained in Table 4.1.

Data for Related Questions

In addition to the stated hypotheses, two questions were asked that were closely related to the general purpose of the study.

Question 1.

What was the general level of expressed understanding for the educable mentally retarded subjects in each of the selected occupational areas? The combined mean score for the educable mentally retarded subjects in all seven occupational areas as shown in Table 4.1 was 50.80. In terms of the scoring procedures used in the evaluation of the levels of understanding, this score was at the bottom end of the scale for Level 3 which has a range of forty-nine to seventy-two points. According to the statement of criteria for determining the levels of understanding, credit for Level 3 was

given when the subjects were able to go beyond the recognition of specific aspects of the occupation and provide more detailed responses indicating general knowledge of the occupation.

Table 4.1 shows the rank order for each of the occupations for the three groups. The general level of only two of the occupational areas is above that of the combined mean total for all of the occupational areas. However, the areas of Agriculture and Commercial are at the top end of the scale for Level 2. The range of Level 2 is twenty-four to forty-eight points.

Question 2.

What general level of expressed understanding has been attained by the educable mentally retarded subjects in the occupational area of their parents?

There were no subjects who had parents in the Esthetic occupational area, and only one in the Scientific area. Two of the subjects were living with relatives, and one was living in a Children's Home. As shown in Table 4.10, the greatest number of subjects had parents in the areas of Personal Service, and Mechanical. In terms of the criteria and scoring pro-

TABLE 4.10.-- Rank Order of the Educable Mentally Retarded Subjects' Mean Scores for Parent's Occupational Area

Occup. Area[a]	N	M	Rank
I	2	32.00	6
II	10	52.10	3
III	5	48.60	5
IV	27	51.56	4
V	2	62.50	1
VI	0	0.00	7
VII	1	57.00	2
VIII	3	-	

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, VII Scientific, and VIII Area unknown

cedure used in the study, the areas of Agriculture and Commercial were below Level 3, which has a range of forty-nine to seventy-two points.

Summary

Data obtained from an analysis of interviews and supplementary information from school records were discussed. The hypotheses were stated and data for each was presented.

The following hypotheses were submitted and the results indicated:

1. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general chronological age in seven major areas of occupations.

Rejected: Significant at the .01 level.

2. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general mental age in seven major areas of occupations.

Rejected: Significant at the .01 level.

3. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescents in the seven major areas of occupations.

Rejected: Significant at the .01 level.

4. There are no significant differences in the relationships in the expressed levels of understanding among the educable mentally retarded adolescents in each of the seven major areas of occupations and their chronological age.

Accepted: Not significant

5. There are no significant relationships in the expressed level of understanding among the educable mentally retarded adolescents in each of the seven major areas of occupations and their mental age.

Rejected: Areas of Agriculture, Mechanical and Esthetic significant at .05 level.

Accepted: Areas of Commercial, Personal Service, Professional, and Scientific not significant.

The vocational preferences of the adolescent educable mentally retarded were investigated. Data was presented with regard to the occupations most and least preferred. The general level of understanding for each of the occupations most and least preferred was stated.

Additional data was presented regarding questions related to the general purpose of the study. The general level of the occupations for the educable mentally retarded subjects was investigated. The combined mean total for all the seven areas of occupations was 50.80 and just within the range of Level 3. The areas of Agriculture and Commercial were in the Level 2 range.

The general level of understanding of the educable mentally retarded subjects in the occupational area of their parents was investigated. All but two of the areas were in Level 3. Subjects with parents in the areas of Agriculture and Commercial scored in Level 2.

The next chapter presents a summary and the conclusions reached in the study. A discussion of the findings and implications for future research are discussed.

CHAPTER V: SUMMARY AND CONCLUSIONS

The summary and conclusions pertaining to the nature of educable mentally retarded adolescent's level of understanding of selected occupations is presented in this chapter. Conclusions of the study and a discussion of the findings as well as implications for future research are presented.

Summary

The major purpose of the study was to investigate the nature of educable mentally retarded adolescent children's expressed level of understanding of selected occupations as compared to intellectually normal children of comparable general chronological and mental ages. Subordinate problems investigated were: (1) the relationships between expressed level of understanding of selected occupations by educable mentally retarded adolescents and their chronological and mental

ages; and (2) the vocational preferences of the educable mentally retarded adolescents with regard to the selected occupations presented in the study.

A review of the literature indicated a growing concern regarding the preparation of the mentally retarded for employment and economic self-sufficiency. The educable mentally retarded are expected to compete on the open job market in their own areas of competence. Previous knowledge and understanding of occupations as well as opportunities for job training is essential. Society is now undergoing a rapid change in technology of the world of work. The effect of automation on the job outlook is one that is of significance to the employment of the mentally retarded. The problem of employment for the retarded will continue to be that of finding suitable areas of employment.

Five null hypotheses were stated for the purposes of investigation.

1. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general chronological age in the seven major areas of occupations.

2. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescents and intellectually normal children of general mental age in the seven major areas of occupations.

3. There are no significant differences in the expressed levels of understanding of educable mentally retarded adolescent children in the seven major areas of occupations.

4. There are no significant differences in the relationships in the expressed levels of understanding among the educable mentally retarded adolescent children in each of the seven major areas of occupations and their chronological age.

5. There are no significant differences in the relationships in the expressed levels of understanding among the educable mentally retarded adolescent children in each of the seven major areas of occupations and their mental ages.

In addition to the stated hypotheses, the vocational preferences of the educable mentally retarded adolescents with regard to the fourteen occupations presented in the study were investigated.

A random sample of 150 students from public junior high schools and elementary schools located in the northern area of the state of Illinois was the basis for the study. Fifty adolescent educable mentally retarded junior high school students enrolled in a state approved program composed the experimental group. Fifty adolescent intellectually normal junior high school students formed the chronological age control group, and fifty intellectually normal elementary school students formed the mental age control group.

All subjects were interviewed in two, forty-five minute interviews regarding their understanding of fourteen selected occupations representing seven occupational areas. The seven occupational areas designated were commercial, personal service, agriculture, mechanical, professional, esthetic, and scientific. The specific occupations selected for the areas were secretary, insurance salesman, cook, barber, dairy farmer, poultryman, automobile mechanic, carpenter, dentist, teacher, actor, musician, pharmacist and weatherman. Pictures of persons engaged in each of the selected occupations were shown to the subjects prior to the interview to ascertain that each subject could identify

the occupation. A list of instructions, an interview card, and an interview form were prepared for each subject.

The subject's school records were examined for data concerning (1) date of birth, (2) sex, (3) date of administration and score of mental abilities test, (4) parent's name and address, (5) parent occupation, and (6) parent place of employment. This information along with the results of the interviews was analyzed to determine the level of understanding of the occupations presented. The expressed levels of understanding were rated on a four point scale, and mean values for each of the occupational areas were derived.

Criteria and rating techniques were developed by James Parker (29) in his study of children's concepts of selected occupations. The identification of four levels of understanding on a continuum of increasing meaning and social insight was adapted for use for the educable mentally retarded and normal junior high school students.

The four levels of understanding were defined by recognition of certain aspects and relationships of the occupation to knowledge of the job and social understanding.

Level 1: Responses that indicated the absence of a concept or misconception regarding specific aspects of an occupation.

Level 2: Responses that indicated recognition of a specific aspect of an occupation.

Level 3: Responses that indicated a general knowledge of an occupation.

Level 4: Responses that indicated an understanding of general social relationships involved in the occupation as well as general knowledge of the occupation.

A summary list of the responses was compiled as an illustration of the four levels for each occupation.

The responses to the interview questions were scored as follows:

Level 1: one point

Level 2: two points

Level 3: three points

Level 4: four points

The total score for an occupational area was obtained by adding the scores for the two occupations representing the occupational area. The mean score for the seven occupational areas provided a measure of the general level

of expressed understanding of occupations attained by the subjects in the study. The range of mean scores for each level of expressed understanding for an occupational area was determined as follows:

Level 1: 0 - 24 points

Level 2: 25 - 48 points

Level 3: 49 - 72 points

Level 4: 73 - 96 points

Vocational preferences were indicated by asking which occupations were most and least preferred. The responses were ranked and a comparative analysis was made using the levels of understanding achieved in the preferred occupations.

Data obtained from the interviews and school records were analyzed using the analysis of variance technique and the calculation of coefficient correlations. All data was processed by electronic data processing machine computers.

Significant Findings

The significant findings stated refer to the tests of the null hypotheses and related questions regarding the expressed levels of understanding of edu-

cable mentally retarded adolescents as compared to intellectually normal children of comparable general chronological and mental ages.

1. The levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general chronological age differ significantly. The lowest ranking mean score for the normal chronological age group was higher than the highest mean score for the educable mentally retarded group. The highest ranking mean score for both groups was the professional area, and the lowest ranking score for both groups was the agriculture area.
2. The levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general mental age differ significantly. The rank orders of the mean scores for the seven occupational areas were the same for both groups.
3. The levels of understanding of educable mentally retarded adolescents among the seven major areas of occupations did differ significantly. The differences between six of the twenty-one pairs

were significant at the .01 level. The mean score of the professional area was significantly higher than the mean scores of all areas except that of personal service. The mean score for personal service was significantly higher than that of the agricultural area.

4. There were no significant differences in the relationships among the expressed levels of understanding of educable mentally retarded adolescents for each of the seven major areas of occupations and their own chronological age.

5. The relationship between the level of expressed understanding of the adolescent mentally retarded subjects and their mental age was significant in the occupational areas of agriculture, mechanical and esthetic. There were no significant relationships established for the other areas.

6. The selected occupations most preferred by the adolescent educable mentally retarded subjects were secretary, auto mechanic, teacher, carpenter, and cook. However, the rank order of the mean scores for the most preferred occupational areas places the occupation of secretary sixth, and auto mechanic

as fifth. The fifth preferred choice of cook ranks first in the rank order of mean scores.

7. The selected occupations least preferred by the adolescent educable mentally retarded subjects were dentist, dairy farmer, teacher, weather man, and cook. The rank order of the mean scores for the least preferred occupations places dentist third, and cook as second.

8. The occupational areas preferred by most of the educable mentally retarded adolescents were that of mechanical and commercial. The areas least preferred by most of the subjects were those of professional and agriculture. In both cases the mean scores ranked in the second half of the rankings of the occupational areas.

9. The general level of expressed understanding for the educable mentally retarded adolescents was the lowest end of the Level 3 scale which indicates the minimal level of understanding of the general aspects of an occupation. The total mean score obtained by the educable mentally retarded subjects was 50.80. The range of Level 3 is from forty-nine to seventy-two points.

10. The general level of expressed understanding of the educable mentally retarded adolescents in the areas of agriculture and commercial were in the range of Level 2. This indicates only a recognition of specific aspects of an occupation.

11. The rank order of the educable mentally retarded adolescent's mean scores of the occupational interview for their parent's occupational area listed that of professional and scientific as first and second. Those that understood least their parent's occupational area had parents in the agriculture and commercial areas.

Conclusions and Discussion

1. The general knowledge of the world of work as indicated by the expressed levels of understanding of the selected occupations by the educable mentally retarded is below that of normal fourth and fifth grade students, in a regular classroom of a public elementary school. The educable mentally retarded subjects were enrolled in a junior high special education classroom and were in the age range from thirteen to sixteen years of age.

The vocational maturity of the adolescent educable mentally retarded subject as indicated by the expressed level of understanding of occupations is not characteristic of that expressed by intellectually normal children of the same chronological age. It would seem that intelligence can be considered a factor in the understanding of occupations and subsequently be related to vocational success.

2. The levels of understanding of educable mentally retarded adolescents and intellectually normal children of comparable general mental age differ significantly. The expressed level of understanding of occupations of the adolescent educable mentally retarded children is very similar to that expressed by the second grade subjects involved in Parker's study (39:83). The combined mean score of the occupational interview form for the seven occupational areas of the second grade group tested by Parker was 50.05, as compared to the combined mean score of the occupational interview form for the seven occupational areas of the adolescent educable mentally retarded group of 50.80.

The ranking of the mean scores of the occupation interview form for the seven selected occupations was

the same for the adolescent educable mentally retarded, the intellectually normal mental age group, and the second grade subjects used in Parker's study. Each area was ranked in the same order for the three groups. It appears that the order of the rankings indicates the levels of understanding for the selected occupations were very similar. Even though the scores of the two comparable mental age groups in the present study differed significantly, the order of their knowledgeable information was the same.

3. The present study indicates a closer relationship between the mental age rather than the chronological age as a factor regarding an expressed level of understanding of occupations by educable mentally retarded adolescents.

It has been suggested by Super (43:57) that vocational maturity can be evaluated either by the normative stage at which a person can be found depending on his chronological age or on a behavioral basis depending on the developmental task regardless of whether the tasks are appropriate for the age or life stage. In the case of the educable mentally retarded, it can be assumed that the second mentioned behavioral basis would be more appropriate for the educable mentally retarded.

The vocational development of the adolescent educable mentally retarded subject as indicated by the level of understanding of occupations as expressed in this study has not reached the second life stage of development as defined by Super (44:9). The educable mentally retarded adolescents are in the life stage characterized as one of growth and fantasy. This is essentially the same life stage the intellectually normal mental age group is in.

From the evidence presented in the present study, it can be said that the adolescent educable mentally retarded individual is coping with the same kinds of developmental tasks as is the subject of comparable mental age who is in the normal intellectual range. It can therefore be assumed that, the vocational development of the adolescent educable mentally retarded individual can be evaluated with reference to the vocational behavior of an intellectually normal individual of comparable mental age.

4. The levels of understanding of educable mentally retarded adolescents among the seven major areas of occupations did differ significantly. The mean score of the occupation interview form for the area of professional

service was significantly higher than all other areas except that of personal service. However, inasmuch as there was only one subject who had a parent in the area of professional service, the personal service area has more meaning. Aside from the large number of subjects who had parents in the mechanical area, the personal service area was the next largest.

The educable mentally retarded subjects interviewed had less opportunities to obtain information regarding background information than those of the normal groups. Comments made by the interviewees during the interview sessions indicated that they were more restricted socially, as well as economically. For instance, many had not had the opportunity to visit a dentist, but did know about the garage mechanic and the barber. The high scores made in the professional area was due to the inclusion of the occupation of teacher. All subjects had contact with, and some understanding of a teacher.

5. The selected occupations most preferred by the adolescent educable mentally retarded subjects were secretary, auto mechanic, teacher, and carpenter. The rank order of the mean scores of the occupation interview form places the occupation of secretary as sixth,

and the occupation of auto mechanic as fifth. This would tend to substantiate the view that children do not choose the occupation which they know the best. However, in terms of their ability to enter into the world of work, their choices were realistic in the areas chosen with the exception of teacher.

The general level of expressed understanding for the educable mentally retarded was at the low end of the Level 3 scale which indicates a minimal level of understanding of the general aspects of an occupation. The total mean score obtained by the educable mentally retarded was 50.80, with the range of Level 3 being from forty-nine to seventy-two points. Two occupational areas were in the Level 2 range. The areas of agriculture and commercial indicated only a recognition of the specific aspects of the occupation.

Implications for Future Research

The following suggestions are offered for further research due to the findings and limitations of the present study:

1. It is recommended that a controlled experimental research project be conducted with educable mentally re-

tarded subjects. The experimental group should be provided a period of time set aside in the curriculum devoted to occupational information, and that the control group have no instruction in occupations.

2. It is recommended that a study be conducted with educable mentally retarded adolescents similar in nature to the present study with the selected occupations being chosen from a list of occupations in which educable mentally retardated subjects have had success. The chosen occupations should also be ones that are indicated by the Labor Department as areas where employment possibilities are good.

3. It is recommended that a study be conducted with educable mentally retarded subjects and a group of intellectually normal elementary school children with matched mental age. The variable of socio-economic background should be added to the design in order to seek further information concerning the implications of poor economic background and lack of opportunity.

Limitations of the Study

For the purposes of this study, the variables used in the analysis of the expressed levels of understanding of occupations by the educable mentally retarded were limited to mental age, chronological age, and occupation of the subject's parent. The instruments used in the study did not allow for a partial correlation of factors to distinguish characteristics of the samples investigated or to determine the factors operative in the expressed choice of occupation.

During the course of the interviews, the investigator noted differences in the manner in which a number of the subjects responded to questions about job family information that would seem to indicate some other variable or variables in operation. Many of the educable mentally retarded and a few of the normal subjects answered questions regarding a job in personal terms. For instance, answers to questions pertaining to when a person would do his job were stated in terms of when the person or service was needed, rather than in terms of clock hours or days of the week. A sample question would be, "When does a cook do his work?", and the answer received would be, "When people are hungry".

Although it cannot be substantiated by the data as analyzed for the purposes of this study, the author feels that an investigation involving socio-economic status would prove fruitful in determining the factor or factors responsible for the differences in the answers to the questions in the interview form.

Further research is contemplated by the author in the investigation of significant differences within the interview form responses regarding the three general categories of job family information, job differentiation, and social implications of the job. Results of the research planned are to be incorporated in a program of occupational information materials, such as video taped programs for use in classroom instruction for the educable mentally retarded. It might even be indicated that children of normal intelligence would benefit from a more personalized viewpoint of the services rendered by workers in our society.

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APPENDIX A

INTERVIEW FORM AND CARD

INTERVIEW FORM

Introduction

(Name of student), I am going to show you some pictures of people that do different kinds of work for a living. As I show you each picture, I will tell you the kind of work the person in the picture does for a living. I am sure you know some things about the kinds of work these people do, and with each picture, I will ask you several questions. Do you understand what we are going to do?

PART I: LEVELS OF UNDERSTANDING

General Job Family Information

1. What does a _____ do in (his or her) work?
2. Where does a _____ do (his or her) work?
3. When does a _____ do (his or her) work?
4. What are some other jobs that are very much like a _____ ?

Job Differentiation

5. What kinds of abilities or skills are needed to become a _____ ?
6. What might be especially pleasant about being a _____ ?
7. What might be especially unpleasant about being a _____ ?
8. What kind of training does a person need to become a _____ ?

Social Implications of Job

9. How does a _____ help other people with (his or her) work?
10. How does a _____ get (his or her) first job?
11. What kind of feelings do other people usually have toward a _____ ?
12. How do the earnings of a _____ compare with other jobs that you know about?

PART II: VOCATIONAL PREFERENCES

1. Which of the jobs that we talked about would you like to do best?

2. Which of the jobs that we talked about would you like to do least?

DATA CARD

Student _____ NO. _____

Birthdate _____ Grade _____ Sex M F School _____

I.Q. Test _____ Date _____ CA _____ MA _____

January MA _____ CA _____

Parent _____ Address _____ Phone _____

Father Empl _____ Occup _____ Area _____

Occupations	Level Total	Pref M	Pref L	Occupations	Level Total	Pref M	Pref L	Area Total
1. Secretary				8. Insurance				
2. Cook				9. Barber				
3. Poultry Fmr				10. Dairy Fmr				
4. Auto Mech.				11. Carpenter				
5. Teacher				12. Dentist				
6. Musician				13. Actor				
7. "Weather Man"				14. Pharmacist				

Comments:

Combined Total _____

APPENDIX B

STUDENT RESPONSES ILLUSTRATIVE OF LEVELS OF UNDERSTANDING OCCUPATIONS

STUDENT RESPONSES ILLUSTRATIVE OF LEVELS OF UNDERSTANDING OF OCCUPATIONS

Question 1. What does a _____ do in (his or her) work?

Level 1	Level 2	Level 3	Level 4
Secretary Helps	Types letters	Types things up, answers the phone and takes memos	Helps her boss by answering the phone and taking letters
Cook Looks at things	Bakes, cooks food, works in restaurant, and makes meals	Cooks things like meat and vegetables	Cooks food for people
Poultry Farmer Sells things	Sells eggs--raises chickens	Raises chickens, ducks and poultry	Raises chickens and sells them to people
Auto Mechanic Has machines	Fixes cars	Fixes cars, engines and parts	Fixes cars for people
Teacher Helps people	Teaches teaches children	Teaches reading, arithmetic	Teaches children how to read and write

Level 1	Level 2	Level 3	Level 4
Musician Blows Plays	Plays music instrument	Plays instrument in band, writes music	Teaches people how to play instrument, entertain people
Weather Man Checks to see if they're OK	Tells weather	Checks thermometer and rain gauge	Tells people what kind of day it will be
Insurance Salesman Sells stuff	Sells insurance	Sells insurance and car insurance, collects for life insurance	Sells people all insurance
Barber Shines shoes	Cuts hair	Cuts hair and sells hair tonic, cuts hair and shaves	Cuts hair for people
Dairy Farmer Raises chickens	Milks cows	Feeds and milks cows	Milks cows so people will have milk
Carpenter Fixes stuff	Builds houses, builds furniture	Builds stores, schools and houses	Builds and repairs houses for people

Level 1	Level 2	Level 3	Level 4
Dentist Fixes people	Pulls teeth	Cleans and fills teeth	Fixes children's teeth when they hurt
Actor Works for people	Acts something, performs	Puts on a costume and acts like a clown	Entertains other people
Pharmacist Writes prescriptions	Sells medicine	Sells medicine and film	Sells medicine to people that are sick
Question 2. Where does a _____ do (his or her) work?			
Secretary At work	In a big building	In an office	In an office next to where the boss works
Cook Home	In a store	In a cafeteria, kitchen, bakery, and restaurant	In a restaurant where he cooks for people

Level 1	Level 2	Level 3	Level 4
Poultry Farmer In the fields	Country, on a farm--in a barn	On a chicken farm	On a farm where he has chickens for people
Auto Mechanic In a factory	Workshop	Garage or gas station	At a garage where he fixes cars for people
Teacher Anywhere	Building	School or classroom	In a school where he teaches children
Musician At work, building	In a practice room, at home	In a parade, concert, stage, studio, and TV	At a program where he entertains people
Weather Man In the day	In a tower, outside	At a weather station	In a building where he predicts for people
Insurance Salesman Outdoors	In his office	In neighborhood or at homes--people's houses	At houses where he sells insurance to people
Barber In an office, building	In a room or in a store	In a barber shop	In a shop where he cuts people's hair

Level 1	Level 2	Level 3	Level 4
Dairy Farmer At dairy	In a barn or on a farm	On a dairy farm	On a farm where he sells milk to people
Carpenter At lumber job	All over or outside	Where there is going to be a new house; in a shop	Where people need something built or fixed
Dentist Uptown	In an office	In a dentist office--his office	In an office where he fixes your teeth
Actor Indoors	In a building	In a theatre, studio, show or on a stage, TV	In a theatre where he puts on a show for people
Pharmacist All over	In a shop or store	At a drug store, medical center, or clinic	At the store where he mixes medicine for people
Question 3. When does a _____ do (his or her) work?			
Secretary Anytime	During the day	Weekdays or when she is given work to do	When the office is open for people or when the boss wants her to work

Level 1	Level 2	Level 3	Level 4
Cook Day and night	All day, in daytime or at night	Everyday, weekdays or meal time--when needed	When the restaurant is open to serve people
Poultry Farmer At breakfast, in morning or afternoon	Spring--Summer, all day, morning and night	Every day or when he collects eggs	When he gathers eggs to sell to people
Auto Mechanic Night and morning	Daytime or at night	Week days or when fixing a car	Usually in day when people have trouble
Teacher All the time	In morning and afternoon	Weekdays or school days	When children come to school
Musician In morning	At night or in day--spare time	Any day or week, or when there is a show; all year	When asked to play for people
Weather Man In the p.m.; mornings	All day or 24 hours a day; daytime--anytime	Everyday or when he predicts the weather	When he predicts the weather for people

Level 1	Level 2	Level 3	Level 4
Insurance Salesman Certain days	All day or evenings, work day, everyday, and all year round	Mostly in daytime and sometimes at night or when he sells insurance	When people are at home so he can sell insurance
Barber Evenings and at night	Every day, all day, daytime, and all year	8-5 and 9-6, Mostly in day and sometimes at night or when he cuts hair; regular hours	When people come in and want their hair cut
Dairy Farmer At night	In the day or early in the morning	Everyday or when the cows need to be milked, morning and night	When he has to milk cows to get milk for people
Carpenter In afternoon	All day, or in the day	Everyday or when there is building to do--sets his own hours	When he has to build for people
Dentist At night, mornings or afternoons	All day	Weekdays or when he fixes teeth--when he has appointments	When someone comes to get his teeth fixed

Level 1	Level 2	Level 3	Level 4
Actor			
Day and night	In the day or in the night or everyday, all day	When it's time for the show or anytime	When he performs for people
Pharmacist			
In the morning	All day, morning and afternoon, everyday	Days and sometimes at night or when he mixes medicine	When people bring him prescriptions
Question 4. What are some other jobs that are very much like a _____ ?			
Secretary			
A president	Housewife, doctor or teacher	Bookkeeper, business man or operator	Other people that work in an office to help people do things
Cook			
Doing it at home	Mother, wife, waitress, dish washer	Grocer, butcher or baker	Other people that prepare food for us
Poultry Farmer			
Children on a farm	Fish hatchery, milkman, bread man, store sells eggs	Regular farmer, cattle farmer, or dairy farmer	Farmer that raises food for us

Level 1	Level 2	Level 3	Level 4
Auto Mechanic			
Other workers	Selling cars, bicycle repair, engineer	Factory assembly, gas station or plane mechanic, and machinist	People that fix cars for us
Teacher			
Factory worker	Secretary, office work, and housewife	Missionaries, principal, minister, music teacher, doctor, and dentist	Other people that teach us things
Musician			
Children in a band	People that play other music	Composer, singer, conductor or artist	Other people that perform
Weather Man			
Banker	Telephone lineman, electrician, radio repair man	Air force men that work on balloons, scientist, TV weather man	People at airport that tell pilot about the weather
Insurance Salesman			
Cab driver	Doctor, office worker	Other salesmen, real estate men, lawyer, business man	Other people that sell us things at home

Level 1	Level 2	Level 3	Level 4
Barber			
Bakery man and butcher	Doctor, dentist or father	Sheep shearer, beauty operator, or veterenarian for dogs	Other people that take care of hair or help us look nice
Dairy Farmer			
Children on a farm	Milk man, carpenter, or dairy worker	Farmer, cattle farmer, poultry farmer	A farmer that raises food for people
Carpenter			
Other workers	Father, repair man, industrial arts teacher	Wood worker, architect, surveyor, contractor, brick layer, plumber, and electrician	Men who build things for other people
Dentist			
Like taking shots	Barber, father, cement driller, or drilling for oil	Doctor, veteranarian	Other people that help you when you are hurt, orthodontist
Actor			
Barber	Plays at school or home, TV person	Clown, singer, musician, movie star, comedian	People that put on acts to entertain you

Level 1	Level 2	Level 3	Level 4
Pharmacist			
Milk man	Office worker, storekeeper, cook, clerk in store	Chemist, druggist, scientist	Other people that help when you are sick; doctor
Question 5. What kinds of abilities or skills are needed to become a _____ ?			
Secretary			
To learn	How to type	How to type and take shorthand and write good	How to take calls and write letters and help her boss with things
Cook			
Work	How to cook and bake	Plan meals and cook food	How to cook meals for other people
Poultry Farmer			
Not many	How to handle eggs or chickens; farmer school	How to handle eggs and chickens	How to raise and sell to people
Auto Mechanic			
Go to school	How to fix cars or know parts	Know how to fix a motor and how it works	Know how to fix cars for people

Level 1	Level 2	Level 3	Level 4
Teacher Go to college	Know good problems and how to handle children, like children	Know how to read, write, do arithmetic	Knows answers to problems and how to handle children in class
Musician Take lessons, practice	How to play songs or an instrument	How to read notes and play instrument	How to play an instrument for people
Weather Man Learn	How to read weather instruments or read weather on radio, TV	How to read weather instruments and predict weather	How to predict the weather for people
Insurance Salesman Know what to do	How to do arithmetic or sell insurance	How to do arithmetic and sell insurance	How to sell insurance to people
Barber Doesn't work hard	Cutting hair, meet people	Cutting hair and selling things	Talking to people and cutting hair

Level 1	Level 2	Level 3	Level 4
Dairy Farmer			
None	How to milk a cow	How to take care of cows and run machine for milking	How to milk cows so people will have milk
Carpenter			
A lot	How to build a house; saw boards; or pound nails	How to pound nails and saw boards	How to build houses right for people
Dentist			
How to do it right	How to fill teeth or pull teeth	How to put in fillings and pull teeth	How to fix teeth for people
Actor			
Know what to do	How to put on make-up or memorize lines; talent	How to put on make-up and act out scripts	How to put on shows for people
Pharmacist			
How to do it	Know about chemicals or how to mix medicine	Know about drugs and how to mix them	Know how to make the right medicine for people

Question 6. What might be especially pleasant about being a _____ ?

Level 1	Level 2	Level 3	Level 4
Secretary Gets to listen in on phone calls	The pay	You can take phone calls and type letters	You can write letters for your boss
Cook Getting paid, it's easy, has a good job	Eat what you want, smelling food	Mixing recipes and cooking food	People praise you when meal is good
Poultry Farmer Working, like job	Picking up eggs	Taking care of eggs and feeding chickens	When you get money from people
Auto Mechanic Not much to do	Fix motors	Testing and repairing motors	Fixing cars for people
Teacher Get paid	Learn a lot of things	Teaching reading and arithmetic	The class likes the way you teach; teaching children
Musician It's easy work, get money	Like to play music	Like your instrument and songs you play	Making people happy with your music

Level 1	Level 2	Level 3	Level 4
Weather Man Nothing, make money	You know what weather will be	Reading instruments and forecasting weather	Telling people what weather will be
Insurance Salesman Riding, selling stuff	Making money, meeting people	Selling insurance and counting money	Helping people with their insurance
Barber Doesn't work hard	Cutting hair, meet people	Cutting hair and selling things	Talking to people and cutting hair
Dairy Farmer Nothing	Likes to milk cows	He gets to be outdoors and around animals	Selling milk and butter to people
Carpenter It's easy	They get paid	Likes to work with wood and make buildings	Making houses for other people
Dentist Isn't anything	Cleaning teeth	Filling and pulling teeth	Fixing teeth for people when they ache

Level 1	Level 2	Level 3	Level 4
Actor Nice work	Wearing different costumes	Putting on make-up and doing tricks	Performing for people
Pharmacist It's easy, liking your job	Mixing medicine	Likes to make pills and capsules	Giving people medicine when they are sick
Question 7. What might be especially unpleasant about being a _____ ?			
Secretary Working	Sitting all day	The office is noisy and there is too much work	You might type something wrong for the boss
Cook Nothing, getting fired	Get burned, hot kitchen	Tired of cooking and smelling food	Burn food and people get mad
Poultry Farmer Don't like it	Breaking eggs, bad smells	Cleaning chicken coop and picking up eggs	Eggs might be bad and can't sell them to people
Auto Mechanic Fixing	Getting dirty	Making mistakes and losing money	Fixing car wrong for people

Level 1	Level 2	Level 3	Level 4
Teacher			
Nothing	When kids are noisy	You have a lot of meetings and work late	The children might not like you, not liking children
Musician			
Waiting, hard work	Playing wrong note, practice	Practicing and going on stage	Making a big mistake in front of crowd
Weather Man			
Get tired of walking	Working on holidays	Reading instruments wrong and making a wrong forecast	Telling people the wrong thing about the weather
Insurance Salesman			
Goofing around	Not selling insurance	Walking a lot and not selling insurance	He might argue with people about insurance
Barber			
Everything	Cleaning up hair	Staying inside and standing all the time	Giving people the wrong kind of haircut
Dairy Farmer			
Working night and day	Getting kicked by cow	Feeding the cows and milking them	If milk soured you couldn't sell it to people

Level 1	Level 2	Level 3	Level 4
Carpenter Sitting around	Hitting your thumb with hammer	Sawing board and hammering in hot sun	Making a mistake and have owner of house mad at you
Dentist It's hard	Filling the teeth	Pulling and filling teeth all the time	Hurting a child and making him cry
Actor There isn't anything	Forgetting your lines	Putting on make-up and getting in front of audience	If people didn't like your act
Pharmacist Not doing anything	Mixing the medicine wrong	Being inside and standing all the time	Sometimes the medicine makes people sick
Question 8. What kind of training does a person need to become a _____ ?			
Secretary Real good training	Learn how to type	Learn how to take notes, calls and typewrite	Has to go to school and learn how to type and do shorthand

Level 1	Level 2	Level 3	Level 4
Cook			
A lot	Practicing, learn to keep hands clean, turn on ovens	How to bake bread, cooking school, cook meat, working in restaurant	Special training in cooking and school
Poultry Farmer			
Be polite	Farming school--go to college or learn to raise chickens, grow up on farm	How to handle chickens and eggs	Go to school and learn about chickens
Auto Mechanic			
Lots of things	How to fix a car or high school or college	Know parts of car and how to fix it	Go to school and learn how to fix cars
Teacher			
Learn	Go to college or how to teach reading	Know different subjects and how to teach children	Need to study many subjects in college
Musician			
Good training	Practice a lot, music training	Know how to read notes and play instrument	Go to music teacher and learn, music school

Level 1	Level 2	Level 3	Level 4
Weather Man Skillful	How to read weather instrument, college degree, school	Know about weather and how the equipment works, weather school	Go to college or to weather school to learn how to predict weather
Insurance Salesman Good	Know how to sell or go to school	How to talk properly and do arithmetic	Go to school and study to sell insurance
Barber Lots of training	Know how to cut hair or barber school	Know different hair tonics and how to cut hair	Go to barber school and learn to cut hair
Dairy Farmer Skillful, none	Know how to milk cow	Know how to feed cows and milk them	Go to school to learn to raise cows
Carpenter Lots	High school or how to build things	Learn how to use tools and build houses, trade school	Go to school and learn to build houses

Level 1	Level 2	Level 3	Level 4
Dentist Good training	College or how to fix teeth	How to fill teeth and pull them	Go to college to learn how to fix teeth
Actor Many things	College or know how to act in show	Learn what to say and when to do it	Go to acting school or college to learn about acting, drama at college
Pharmacist Real good	Go to college or how to mix medicine	Know all the medicines and how to use them	Go to college and learn how to mix medicine
Question 9. How does a _____ help other people with (his or her) work?			
Secretary A lot	Makes work papers for the teacher	Types and sends letters	Does typing and shorthand for the boss
Cook Sometimes	Cook food, feeds them	Cooks different kinds of meals	Cooks food for people

Level 1	Level 2	Level 3	Level 4
Poultry Farmer Helps	Sells eggs	Collects eggs and puts them in boxes	Sells eggs and chickens to people
Auto Mechanic Fixes things	Fixes car motor	Fixes car and truck	Repairs cars for people
Teacher Learns	Teaches how to do things, education	Teaches reading, writing, spelling	Helps children learn things
Musician Works	Teaches how to play an instrument and stuff	Plays concerts, on TV and radio	Plays music for people
Weather Man Tells them	Predicts weather	Checks instruments and predicts the weather	Tells people what weather will be
Insurance Salesman Helps them	Sells insurance	Sells car or life insurance	Sells insurance to people

Level 1	Level 2	Level 3	Level 4
Barber Works	Cuts hair	Cuts hair and sells things	Gives people hair cuts
Dairy Farmer Brings things	Gets milk from cows	Produces milk, cheese and butter	Sells milk to people
Carpenter Fixes stuff	Fixes houses	Builds offices, houses and schools	Builds homes for people
Dentist Checks	Pulls teeth	Cleans, fills or pulls teeth	Helps people keep their teeth in good condition
Actor Shows them	Puts on shows	Acts on TV or in shows or circuses	Makes people happy with his act
Pharmacist Sells things	Makes medicine	Prepares drugs and sells medicines	Sells people medicine when they are sick

Question 10. How does a _____ get (his or her) first job?

Level 1	Level 2	Level 3	Level 4
Secretary Practices	Applies for it	Puts a note in the paper or walks around looking for a job	She could ask a man at the office if she could get a job there
Cook They like him	Cook a sample, take test, goes to restaurant	Cooking class--go out and look around, apply at employment office	Buy a store and start business
Poultry Farmer Learns how	Buys some chickens	Working on farm, buys some land and raises chickens, put ad in paper	Borrow money from someone and starts his own
Auto Mechanic Asks	Go to garage, employment office	Interview and ask, go to garage and show he can fix car, apprentice	Go to garage and ask owner for job

Level 1	Level 2	Level 3	Level 4
Teacher Studies	Goes to college	Does practice teaching, then becomes teacher, (college placement)	Goes to principal and asks for job
Musician Practices	Learns to play an instrument	Learns to play horn and has audition, ad in paper	Shows people he can play
Weather Man Helps	Assigned a job, asks for a job, application	When he gets out of school and looks for a job	Goes to weather station and asks for a job
Insurance Salesman Looks	Goes to an insurance office, fills out application	Studies insurance then tries to get job	Goes to insurance office and is interviewed by boss
Barber Practices	Practices cutting hair, applies for it, hunt	Looks around and asks for job, works with other barbers	Buys his own shop from another barber

Level 1	Level 2	Level 3	Level 4
Dairy Farmer Works	Lives on farm	Works as hired man and learns to milk cows, buys the farm	Works for another dairy farmer and gets his own farm
Carpenter Applies	Signs up for a job	After he learns how, he starts building houses; apprentice or work for carpenter first	Goes to contractor and is interviewed; learns how and starts own business
Dentist Practices	Takes tests to see if he can fix teeth; going to school	Starts as an assistant and works up	Helps other dentist or starts his own office
Actor Looks	Practices acting	Goes to studio and asks for job, reads lines or auditions	Go to someone who is putting on show and audition
Pharmacist Studies	Applies for a job	Works in a drug store and starts to sell medicine	Goes to a druggist or employment office and asks for a job

Question 11. What kind of feelings do other people usually have toward a _____?

Level 1	Level 2	Level 3	Level 4
Secretary Lots	Good feelings, happy, sometimes good and sometimes bad, nice	She's a nice lady and types good	People respect them for being able to type good; they don't like them if they make mistakes
Cook No feelings	Good feelings, happy, sometimes good, bad, nice	He cooks good food	Like him when he fixes meal
Poultry Farmer No feelings	Good, happy, sometimes good, sometimes bad	He's nice and good at farming	Good feelings because he gets us food
Auto Mechanic None	Good feelings, happy, sometimes good and sometimes bad	He's good at fixing cars	They like him because he can fix cars
Teacher Lots	Good feelings, happy, sometimes good, sometimes bad, nice	They are nice and teach good	If he's a good teacher people like him

Level 1	Level 2	Level 3	Level 4
Musician None	Good, happy, sometimes good and sometimes bad, nice	They play good music	People like him for music he plays, they clap for him
Weather Man No feelings	Good feelings, happy, sometimes good and sometimes bad, nice	Nice because he knows a lot about the weather	People like him because he tells them what weather will be
Insurance Salesman Lots	Good feelings, happy, sometimes good and sometimes bad, nice	Nice because he sells insurance on houses	People get mad at him when he sells the wrong insurance
Barber No feelings, lots	Good feelings, happy, sometimes good, sometimes bad, nice	He's nice and cuts hair straight	People don't like him if he cuts hair wrong
Dairy Farmer Lots	Good feelings, happy; sometimes good, sometimes bad; nice	He's nice and milks cows real good	People like him because he provides them with milk

Level 1	Level 2	Level 3	Level 4
Carpenter Not many	Good feelings; sometimes good and sometimes bad; happy; nice	He's a nice man to build houses	They like him if he builds good houses
Dentist No feelings	Good feelings, happy, sometimes good and sometimes bad; nice	He's a nice man because he fixes teeth	Bad feelings when he hurts you
Actor None	Good feelings, happy, sometimes good and sometimes bad, nice	He's good at acting	People enjoy watching his act or play
Pharmacist Lots	Good feelings, happy, sometimes good and sometimes bad, nice	He makes good medicine	Good feeling, when he makes medicine that helps people get well
Question 12. How do the earnings of a _____ compare with other jobs that you know about?			
Secretary Very high like a principal's	Pretty good, average, little less	Good--if she is a good typist	An insurance man is richer

Level 1	Level 2	Level 3	Level 4
Cook Like a dish-washer, doctor	Not real good, a little more, about the same	Good--if he's a good cook	Baker; varies with the restaurant and how good he cooks
Poultry Farmer Very rich	Not real good, a little more--about the same	Good, if he has a lot of chickens	Depends on how much he sells to others
Auto Mechanic Very high, pretty low	Quite a bit, about same, a little more	Good, if he is good mechanic	General Electric might pay a little more
Teacher No money, lots of money	Not too much, about the same, little more	Good--if he is a good teacher (other)	Compare with principal, not as much as weatherman
Musician A lot more	Same, a little more, not a real lot, very good, average	Some get a lot, some don't, good-if he is a good musician	Compare with band leaders; less than professionals, other performing arts
Weather Man Not much, very high, more than other people	The same, pretty high, very good	Good--if he is a good weather man	About the same as other scientists

Level 1	Level 2	Level 3	Level 4
Insurance Salesman Like collecting bottle tops	A little more, a little better, about the same	Good--if he is a good salesman	About the same as other salesmen or a little more
Barber Lots of money like doctor or dentist	The same, compare pretty good, little below average, factory worker	Good--if he's a good barber	About same as beauty operator
Dairy Farmer Very high, less, more	Little bit more; about the same; little lower; pretty good	Good--if he has lots of cows	Like a cattle farmer or a regular farmer
Carpenter Not real good; less; little	Average, good, the same, better	Good--if he has lots of houses to build	Like a plumber or other artisan
Dentist Not real good	Little more, better, real good	Good--if he is a good dentist, above average, very good, services are high	About the same as a doctor, lawyer, orthodontist

Level 1	Level 2	Level 3	Level 4
Actor			
Like a cowboy	A lot more, pretty high, good, very high, lower	Good--if he's in lots of shows	About the same as musicians or other entertainers
Pharmacist			
Money	Average, a little more, pretty high	Good--if he has a big business	Like a grocery man, doctor or dentist, or business man with a store

APPENDIX C

SUPPLEMENTARY TABLES

TABLE 1. -- Mean Mental Ages and Chronological Ages of Sample Populations

Sample[a]	N	Range	EX	M	SD
		Mental Age			
EMR	50	101-155	6238	124.76	13.28
NCA	50	145-229	9540	190.80	21.65
NMA	50	100-155	6581	131.62	14.03
Total	150	100-229	22359	149.06	34.08
		Chronological Age			
EMR	50	157-191	8797	175.94	8.28
NCA	50	157-189	8569	171.38	8.39
NMA	50	99-139	5969	119.38	8.33
Total	150	99-191	23335	155.57	27.04

[a]EMR - Educable Mentally Retarded

NCA - Normal Chronological Age

NMA - Normal Mental Age

TABLE 2. -- Analysis of Variance of Educable Mentally Retarded and Normal Chronological Age Subjects' Mean Scores for Occupational Areas

Source of Variation	df	Sum of Squares	Mean Square	F(.01)= 6.90*
		Commercial		
Between	1	5431.69	5431.69	93.92*
Within	98	5667.62	57.83	
Total	99	11099.31		
		Personal Service		
Between	1	2061.16	2061.16	42.22*
Within	98	4784.08	48.82	
Total	99	6845.24		
		Agriculture		
Between	1	2766.76	2766.76	57.82*
Within	98	4689.68	47.85	
Total	99	7456.44		
		Mechanical		
Between	1	2590.81	2590.81	56.41*
Within	98	4500.58		
Total	99	7091.39		

TABLE 2. -- Continued.

Source of Variation	df	Sum of Squares	Mean Square	F(.01)= 6.90*
		Professional		
Between	1	2143.69	2143.69	32.64*
Within	98	6437.30	65.69	
Total	99	8580.99		
		Esthetic		
Between	1	2332.89	2332.89	49.38*
Within	98	4629.86	47.24	
Total	99	6962.75		
		Scientific		
Between	1	1892.25	1892.25	33.10*
Within	98	5602.74	57.17	
Total	99	7494.99		

*Note: F (1,98) = 6.90 for .01 level of significance

TABLE 3. -- Analysis of Variance of Educable Mentally Retarded and Normal Mental Age Subjects' Mean Scores for Occupational Areas

Source of Variation	df	Sum of Squares	Mean Square	F(.01)= 6.90*
		Commercial		
Between	1	992.25	992.25	11.96*
Within	98	8131.94	82.98	
Total	99	9124.19		
		Personal Service		
Between	1	571.21	571.21	9.79*
Within	98	5716.98	58.34	
Total	99	6288.19		
		Agriculture		
Between	1	1324.96	1324.96	23.38*
Within	98	5552.88	56.66	
Total	6877.84			
		Mechanical		
Between	1	918.09	918.09	16.97*
Within	98	5302.66	54.11	
Total	99	6220.75		

TABLE 3. -- Continued.

Source of Variation	df	Sum of Squares	Mean Square	F(.01)= 6.90*
		Professional		
Between	1	576.00	576.00	6.98*
Within	98	8087.16	82.52	
Total	99	8663.16		
		Esthetic		
Between	1	924.16	924.16	14.72*
Within	98	6153.48	62.79	
Total	99	7077.64		
		Scientific		
Between	1	992.25	992.25	12.70*
Within	98	7656.34	78.13	
Total	99	8648.59		

*Note: F (1,98) = 6.90 for .01 level of Significance

TABLE 4. -- Analysis of Variance for Normal Chronological Age Subjects' Mean Scores for Seven Occupational Areas

Source of Variation	df	Sum of Squares	Mean Square	F
Between	6	1847.99	308.00	8.11*
Within	343	12605.88	36.75	
Total	349	14453.88		

* F (6,343) = 2.85 for .01 level of significance

TABLE 5. -- Analysis of Variance for Normal Mental Age Subjects' Mean Scores for Seven Occupational Areas

Source of Variation	df	Sum of Squares	Mean Square	F
Between	6	1046.91	174.48	2.61*
Within	343	22895.46	66.75	
Total	349	23942.37		

* F (6,343) = 2.12 for .05 level of significance

TABLE 6. -- Coefficients of Correlation Between Subjects' Chronological Age and Mean Scores for Seven Occupational Areas

Occup. Area[a]	M	SD	r	Signif. Level
	Normal Chronological Age			
I	63.50	7.23	.002	-
II	62.28	5.64	.044	-
III	57.92	5.50	.136	-
IV	60.90	5.86	.032	-
V	64.64	6.14	-.058	-
VI	59.68	5.17	-.003	-
VII	58.84	6.44	.026	-
	Normal Mental Age			
I	55.06	10.13	.252	-
II	57.98	7.13	.052	-
III	54.68	6.92	.211	-
IV	56.78	7.12	.092	-
V	60.18	8.45	.250	-
VI	56.10	7.60	.160	-
VII	56.44	9.27	.072	-

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

TABLE 7. -- Coefficients of Correlation Between Subjects' Mental Age and Mean Scores for Seven Occupational Areas

Occup. Area[a]	M	SD	r	Signif. Level
	Normal Chronological Age			
I	63.50	7.23	.218	-
II	62.28	5.64	.104	-
III	57.92	5.50	-.155	-
IV	60.90	5.86	.029	-
V	64.64	6.14	.190	-
VI	59.68	5.17	.190	-
VII	58.84	6.64	-.017	-
	Normal Mental Age			
I	55.06	10.13	.365	.01[b]
II	57.98	7.13	.346	.05[c]
III	54.68	6.92	.379	.01
IV	56.78	7.12	.416	.01
V	60.18	8.45	.354	.05
VI	56.10	7.60	.466	.01
VII	56.44	9.27	.413	.01

[a] I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

[b] .01 Level of Significance = .361

[c] .05 Level of Significance = .279

TABLE 8. -- Rank Order of Subjects' Most and Least Preferred Occupations

Occup.[a]	NCA[b]		Rank		NMA[c]		Rank	
	M	L	M	L	M	L	M	L
1	8.	3	3	6.5	9	5	2	4
2	2	2	9	9	2	6	8	3
3	0	11	-	1	0	1	-	12.5
4	9	8	2	3	7	10	4	1
5	11	4	1	5	12	3	1	7.5
6	2	5	9	4	2	2	8	10.5
7	3	1	6	11	1	3	10	7.5
8	3	2	6	9	0	3	-	7.5
9	1	0	12	-	0	3	-	7.5
10	1	9	12	2	2	0	8	-
11	1	0	12	-	4	7	5	2
12	3	2	6	9	3	4	6	5
13	4	3	4	6.5	8	2	3	10.5
14	2	0	9	-	0	1	-	12.5

[a]1 Secretary, 2 Cook, 3 Poultry Farmer, 4 Auto Mechanic, 5 Teacher, 6 Musician, 7 Weatherman, 8 Insurance Salesman, 9 Barber, 10 Dairy Farmer, 11 Carpenter, 12 Dentist, 13 Actor, and 14 Pharmacist

[b]Normal Chronological Age Group

[c]Normal Mental Age Group

TABLE 9. -- Rank Order of Subjects' Mean Scores for the Most and Least Preferred Occupational Areas

Occup. Area[a]	Most Preferred N	M	Rank	Least Preferred N	M	Rank
		Normal Chronological Age				
I	11	62.72	4	5	63.20	3
II	3	58.33	6	2	65.50	2
III	1	53.00	7	20	57.35	7
IV	10	63.10	2	8	61.37	4
V	14	66.50	1	6	66.50	1
VI	6	62.83	3	8	57.50	6
VII	5	61.40	5	1	59.00	5
		Normal Mental Age				
I	9	57.44	2	8	50.62	6
II	2	50.00	6	9	60.33	2
III	2	55.50	4	1	62.00	1
IV	11	53.36	5	17	58.17	3
V	15	56.40	3	7	54.42	5
VI	10	59.60	1	4	55.75	4
VII	1	49.00	7	4	49.75	7

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

TABLE 10. -- Rank Order of Subjects' Mean Scores for Parent's Occupational Area

Occup. Area[a]	NCA[b] N	NCA[b] M	NCA[b] Rank	NMA[c] N	NMA[c] M	NMA[c] Rank
I	13	62.62	4	10	52.90	4
II	1	72.00	1	0	-	-
III	1	61.00	6	3	50.00	7
IV	24	61.04	5	26	56.35	3
V	10	64.20	2	8	65.63	2
VI	1	63.00	3	0	-	-
VII	0	-	-	2	66.00	1

[a]I Commercial, II Personal Service, III Agriculture, IV Mechanical, V Professional, VI Esthetic, and VII Scientific

[b]Normal Chronological Age Group

[c]Normal Mental Age Group