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ABSTRACT

The 13 papers compiled in the document serve to meet the needs of personnel serving the mentally retarded and can also be adapted for use by educators not directly serving the handicapped. They discuss relevant information and procedures that can be used to help the mentally retarded become well oriented to the working world and to themselves. The document includes the full text of the following papers: Adult Needs of the Educable Mentally Retarded; Evaluating the Vocational Potential of the Educable Mentally Retarded; Job Analysis--the Key to Effective Job-and-People Matching; Matching Students with Jobs; Vocational Evaluation through the Use of Work Samples; Reason for Work Sampling at Kennedy High School; Evaluation of Work Sampling; Job Samples; The Reading-Free Vocational Interest Inventory: Measurement of Job Preference in the Educable Mentally Retarded; The Evaluation and Modification of Work Behavior of Educable Mentally Retarded Clients; The Employee Q-Sort; Student Q-Sort; and Combining Information and Procedures Related to Rendering Students Employable. References are listed for some of the articles. The agenda for the special study institute, list of participants, and future related activities are appended. (Author/EC)

VOCATIONAL AND EVALUATION

Iowa Department of Public Instruction
August, 1972

VOCATIONAL EVALUATION AND CURRICULUM MODIFICATION

Iowa Department of Public Instruction
August, 1972

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Special Study Institute

"VOCATIONAL EVALUATION AND CURRICULUM MODIFICATION"

February 1, 2, and 3, 1972
Ramada Inn, Des Moines, Iowa

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PREFACE

Special Study Institute

"VOCATIONAL EVALUATION AND CURRICULUM MODIFICATION"

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This Special Study Institute was part of Iowa's State Plan for the utilization of funds allocated to Iowa and authorized by Public Law 91-230, Education of Handicapped Act, Part D (Preparation of Personnel in the Education of the Handicapped). This state program is administered by the Division of Special Education, Pupil Personnel Services Branch, Iowa State Department of Public Instruction.

This document has been prepared in response to the high degree of interest among educators in Iowa concerning the topic, "Vocational Evaluation and Curriculum Modification for the Mentally Retarded." Although the Institute was designed to meet the needs of personnel serving the mentally retarded, the materials can be easily adapted to serve educators not directly serving the handicapped.

The materials have been compiled, edited and summarized to maximize their utilization. In addition, it is suggested that the reader contact an institute participant (see Appendix B) in his geographic area regarding questions, comments and the effectiveness of specific ideas.

Peter A. Malmberg

Raymond E. Morley

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ADULT NEEDS OF THE EDUCABLE MENTALLY RETARDED

Raymond E. Morley
Consultant, Secondary Programs
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The needs of Educable Mental Retardates (EMR's) as they relate to employment are manyfold. In my mind, they can be classified into two broad categories - direct and indirect needs. Direct needs refer to specific characteristics of the EMR, i.e., his or her habits, attitudes, behavior, speed, dexterity, etc. Indirect needs refer to specific services provided the EMR to expediate his or her adjustment to employment, i.e., educational programs, work experience, medical services, social services, etc.

There is no doubt that indirect needs are shared by both the EMR and his helpers; professional and non-professional. They are shared because indirect needs arise from direct needs and therefore, affect more than the individual, i.e., they especially cause problems for other individuals who are determined to help.

In this situation, I have chosen to concentrate upon some indirect needs that I feel are paramount; needs that are shared by both the EMR and his work experience coordinator and/or classroom teacher. I think the kind of services we have offered the EMR to become occupationally adjusted have both satisfied needs and uncovered needs which still have to be satisfied.

I. THERE IS A NEED TO BEGIN TO CHANGE OUR POSITION IN TRACKING ALL EMR's INTO LOW LEVEL OCCUPATIONS.

Farber (1968) has indicated that the EMR population can be identified as a "surplus population." This phenomenon is based upon the internal

factors regulating social class growth. An important factor influencing societal views is communication.

If we take a close look at how the EMR is being sold to employers, we can see why the general public would view the EMR as a "surplus population"--an economical, organizational surplus. Not only do the majority of EMR's come from low income families, but we promote the placing of EMR's in occupations which will lock them into a low income bracket. EMR's are being placed into unskilled and semi-skilled jobs; jobs which are low paying (Kokaska 1971). This identification and placement appears to be unjust to some extent.

Some research suggests that we could be "missing the boat" with our present policy of placement. Brolin (1971) feels the following conclusions can be drawn from the literature: (1) that the retarded have untapped potential for achieving high levels of personal, social, and vocational functioning than they are presently achieving; (2) that, given the opportunity and better training programs, the retarded individual can reach an increasingly higher level of performance than was earlier thought attainable; (3) that what has limited the performance of many retarded persons is not their intellectual inability, but rather a lack of appropriate opportunities; and (4) that appropriate training techniques and the identification of jobs which the retarded can perform are the key to their being able to compete effectively in the job market.

There have been several studies of employer attitudes toward the employment of the EMR (Cohen 1963), (Hartlage 1965), (Phelps 1965). A study conducted by Bolonovich (1968) suggested the following:

(1) A large majority of employers (at least three-fourths) do not have personal experience with employment of retardates or knowledge of

other employers' experiences. In addition, most employers have not had contact with rehabilitation agencies serving retardates, or knowledge of the pre-employment training work they do.

(2) On the other hand, the employers with most favorable attitudes toward retardates differ from those with less favorable attitudes in that they, (a) have greater experience as employers of retardates, (b) know of others who have had such experience, and (c) have had more contact with rehabilitation work.

(3) Attitudes toward retardates are more favorable among personnel workers in larger organizations than among a more general sampling of managers.

(4) Employers with lower attitudes also tend to have more rigid standards of employment. However, a large proportion of employers see the desirability of waving educational standards for those who can demonstrate ability in lower skilled occupations.

(5) Employers' evaluation of relative strengths and weaknesses of retardates correspond pretty much to generally stated professional opinion. Principal factors they see are that the retardates are more resilient to monotonous or unpleasant assignments and are satisfied more readily in their work. They see retardates as being successful mainly in jobs as general laborers, porters, maids, janitors, and in generally unskilled occupations. They do not see retardates as succeeding in clerical, retail sales, or semi-skilled work.

(6) Although employers appreciate the need for employment of retardates, and many feel that they have jobs retardates can fill, they are not eager to get involved in such employment. They do not express a strong desire for contact by rehabilitation workers and are somewhat apprehensive about involvement with them.

(7) Employers are realistic about the economic value to their companies of hiring retardates and about their comparability with normal employees. Many see them as a good labor source only in a tight labor situation.

(8) Employers are somewhat uncertain about insurance problems connected with hiring retardates.

These observations point up that there is a need for employer exposure to the capabilities and actual performance of retardates, that there is a need to educate supervisors of the special needs of retardates, and that there is some significance to the pre-employment preparation needed by the EMR to become acceptable candidates for successful employment.

It appears at this stage of the game that we should concentrate on creating a realistic but more opportune awareness of the trainability and employability of the EMR.

II. THERE IS A NEED FOR WORK EXPERIENCE COORDINATORS TO ORGANIZE THEMSELVES WITH RESPECT TO HELPING EMR's BECOME OCCUPATIONALLY ORIENTED.

A study by Morley (1970) indicated that the problems EMR's experience can be due to the procedures of operation of a work experience coordinator. Variations in procedures of operation of a program were found to be most prominent between coordinators in: (a) conducting job analysis, (b) contacting employers, (c) evaluating students, (d) coordinating public relations, and (e) upgrading themselves and their programs. Data collected by means of a questionnaire indicated that:

(1) Nearly 50% of the responses supported that teacher-coordinators did not complete job analysis before placing students on jobs or closely compare student ability to job areas.

(2) Nearly 40% of the responses indicated that coordinators do not have an organized approach in contacting employers about hiring the EMR.

(3) Over 50% of the responses supported that teacher-coordinators either speak occasionally or not at all to community organizations about the program they coordinate.

(4) Over 50% of the responses supported that teacher-coordinators either occasionally or seldom speak of new developments which could be utilized to strengthen their existing programs.

(5) 50% of the responses supported that full-time coordinators did little job visitation or visited job sites without the use of any type of evaluation format that supervisors could use.

This study suggests that coordinators working under similar program structures differ in their approach toward working with students, employers, and other professionals. Their approach differs mainly with respect to procedural operation. Much of the difference lies in varied training, information sources, and attitude toward involving oneself with persons in the community and other professionals in education.

A breakdown in services is also indicated in a study by Brolin (1969). In a followup of post-school retardates he found that 80% of the MR's have potential for satisfactory vocational and social adjustment. His conclusions were that the EMR continued to fail because of a lack of public understanding, appropriate education, housing, evaluation, training programs, parent counseling, followup and the like.

These studies and others (McAlees 1968), (Bradshaw 1968), and (Gottwald 1967) do indicate some need for further organization to upgrade our services. It appears that the responsibility lies with work experience coordinators.

III. THERE IS A NEED TO BEGIN TO SEQUENCE CAREER EDUCATION INTO THE FULL TWELVE YEARS OR MORE A SPECIAL EDUCATION STUDENT WILL SPEND IN ELEMENTARY AND SECONDARY EDUCATION.

The national surge to date is to "careerize" education for all students - not just for a select few. Special educators have used the last 4 years of secondary education for a long time to orient youth to the world of work. We cannot fall behind the main reawakening in the educational world - "that career education must begin in the elementary grades."

Major theories and research studies are supporting the fact that we should begin early to orient youth to the world of work. Super (1963) has identified the "growth stage" (birth through 13) through which self-concept is developed. He is supported by Gunn (1964) and Simons (1963) who have found that by the fourth grade children are beginning to have perceptions of occupational prestige similar to those of adults. Furthermore, De Fluer (1960) indicates that 4th grade children have internalized the idea that specific and complex skills are involved in many occupations.

Other authorities have attested to the importance of the early school years in vocational development (Hatch and Costar 1961), (Rosecrance and Hayden 1960), (Havighurst 1953), (Hoppock 1967), (Borow 1964). This emphasis is not new. It is, however, just becoming strongly activated.

If special educators hold true to their philosophy of educating students to facilitate community adjustment, then they should not fall behind in this trend. The sequencing of curriculum from elementary through secondary emphasizing career education should not be neglected.

IV. IN CONJUNCTION WITH NEED III, THERE IS A NEED FOR ELEMENTARY AND SECONDARY TEACHERS OF EMR's TO BEGIN TO SHARE THEIR DOMAINS WITH THE TEACHERS IN THE REGULAR SCHOOL PROGRAMS. IN THIS INSTANCE, THEY SHOULD BE SHARING EFFORTS TO DEVELOP CAREER EDUCATION.

A recent conference held in Missouri on categorical and non-categorical aid disclosed the viewpoints of many special education leaders across the

country. Strong support was mustered for special education to move into the mainstream of general education. Not only was there support for this movement, but models were presented to actualize a special education-regular education joining (Meyen 1971).

Since career education will be the main trend in education for tomorrow, it could be a major vehicle to move special education and regular education closer together. The kind of information and training we now offer special students could be offered regular students as well. Likewise, vocational educators have something to contribute to special education. Most research studies and material development in career education is being completed with regular students. Work experience coordinators need to reach out and begin to ask for information in this area.

I think if special education personnel begin to ask for some help and aid that barriers will be broken and information will begin to be shared.

V. THERE IS A NEED FOR THE SPECIAL EDUCATION TEACHER TO BECOME AWARE OF VOCATIONAL ASSESSMENT AND HOW IT CAN BE USED TO DIRECT EDUCATION AND TRAINING.

Some research on psychological evaluation has indicated that teachers and other professionals misuse information or let it falsely direct endeavors (Rosenthal and Jacobson 1968), (Beez 1968), (Sarason 1969).

Rosenthal and Jacobson (1968) gave all the children in one elementary school a test which they indicated to teachers was a measure of children's readiness to show an intellectual growth spurt. The investigators later gave each teacher a list of those in her class who were supposed to show such spurts. Unknown to the teachers, the names had been drawn at random. That is, the experimenters chose about twenty per cent of the children's

names "out of a hat" from a list of all the children in the class and arbitrarily designated these as the "potential bloomers."

Later in the school year, the investigators returned to give the children the same test again. The test was actually a group intelligence test with which the teachers were not familiar. The authors reported that the experimental children, i.e., the predicted "bloomers," gained significantly more in intelligence than the control children. The prophecy, they claimed, was fulfilled.

Beez (1968) carried out an investigation of this kind of phenomenon in a controlled teaching situation. Each of sixty summer school graduate students was asked to tutor a five-year-old headstart child for half an hour. The first task consisted of teaching the child the recognition of as many words or signs (e.g., "stop," "men") as possible in ten minutes. Each tutor was shown a realistic looking but actually contrived psychological report on his child. Half of these reports indicated that the child had low potential for school learning, the other half that he had high. The reports were assigned at random to both tutors and pupils. The group of tutors who received the "low" reports were comparable in terms of teaching experience and educational background to those receiving the positively biased reports. Similarly, the group of pupils on whom the negative biased reports were made were comparable in terms of age and vocabulary level to the group on whom "high" reports were made. Tutors who were given reports which indicated a high expectancy for their pupils presented more words for their pupils to learn; out of a possible twenty words they presented an average of about ten, whereas for tutors with reports indicating a low expectancy for their pupils the average was about five words presented. The learning achievement of the pupils

reflected the tutors' expectancy with the "high" group averaging about six words learned to three for the "low." Few "low" tutors and pupils performed as well as "high" tutors and pupils. In short, what the teacher believed as a consequence of the prior report influenced the number of words learned by pupils. Pupil response thus supported the teacher's initial belief about the pupil, though in reality it was directly a result of teacher behavior and not pupil competence. Observations showed that fewer words were presented and learned when the teacher's expectancy of pupil ability was low, because the teachers spent more time explaining and repeating words.

Blackman (1967) has indicated that general IQ tests, with their emphasis on scholastic skill, may leave untapped other kinds of ability which may be of great importance in working with the less intelligent. Ghiselli and Brown (1951) reviewed studies that reported relationships between aptitude tests and some measure of trainability. Their over-all impression was that trainability cannot be well predicted by tests of this sort. This is because the tests do not measure the types of abilities required in training for specific jobs. Barrett, Relos, and Eisele, (1965) have found that IQ does not distinguish between successful and non-successful EMR's.

Since IQ and aptitude tests are not good predictors of vocational ability, a broader range of ability must be assessed in order that major variables that make for work success with the less intelligent may be detected. Major techniques reported in the literature will be covered in this workshop. They are: (1) standardized testing, (2) work sample, (3) job analysis, and (4) work adjustment.

It seems reasonable to believe that our ability to help EMR's develop their vocational potential will be optimized by becoming aware of techniques which will allow the determination of skills related to vocational development or upgrading. Hopefully, our approach during the next few days will modify current practices of making vocational training and placement decisions for EMR workers on little more information than an IQ or stereotypes held by coordinators, parents, employers, or counselors. It is anticipated that an organized approach to evaluation and training that attempts to match a person's skills with the specific skill requirements of a particular task will do more to: (a) integrate the EMR into higher levels of employment, (b) help organize procedures practiced by coordinators, (c) help solidify curricular practices, and (d) help develop common grounds for communication with other educational personnel.

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EVALUATING THE VOCATIONAL POTENTIAL OF THE EDUCABLE MENTALLY RETARDED

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It is a fact that the vast majority of persons we have labeled as educable mentally retarded (EMR) could achieve higher levels of personal, social, and vocational functioning if they had better education, training, and vocational opportunities. Unfortunately, too many retarded persons continue to fail because of the lack of public understanding, appropriate education, housing, evaluation and training programs, parent counseling, and follow-up. Secondary education should and can be providing programs to eliminate most of these failures. This paper will focus on the need for and administration of a dynamic, well-conceived vocational evaluation program as an integral part of secondary education for the EMR.

It is no secret that special education, as now practiced, is being blatantly criticized. There are those who feel that special education, at least at the secondary level, is not adequately meeting the needs of its students. Writers such as Goldstein (1969) believe there is too much emphasis on academic instruction and too little on the development of socio-occupational competence. Similar criticisms recur, even though the primary special education innovation at the secondary level during the past decade has been the incorporation of work experience in the high school curriculum. These work-study programs brought about the earlier involvement of the rehabilitation agency but have limitations as pointed out by Hammerlynck and Espeseth (1969).

> Consequently, programs of service to the retarded have suffered because of the inadequate communication between the two specialists. This level of communication has caused sporadic services, and, consequently, inadequate continuity of service to the mentally retarded as they progressed through the work experience program toward independent adult status (p. 49).

The work experience programs have also involved two other types of agencies--the employment service and sheltered workshops. The employment service has been singled out as one of the crucial agencies in rehabilitating the mentally retarded. However, a recent study by Smith (1970) found that Colorado State Employment Service counselors did not feel it was their responsibility to find employment for the mentally retarded and were not knowledgeable about mental retardation. Thirty-eight percent of these counselors indicated they often did not have any working relationship with special class programs for the EMR. Sheltered workshops have provided vocational evaluation, training, and placement of many EMR students, relieving participating schools of vocational education responsibilities. But there are limitations. Often the workshop staff is not as well-trained in mental retardation as the school personnel. Staff members frequently are not aware of the student's background, nor have they had the opportunity to observe his functioning over a long period of time as have school personnel. Workshops often do not have enough personnel to give the large number of clients they serve extensive individualized assistance. Finally, being work and production-oriented, the workshops assume a client to have a certain level of vocational maturity, motivation, and experience which the 16, 17, or 18 year old EMR student may not have attained. Often the special education student could benefit more from a vocational evaluation program at the school.

It is my feeling, and the feeling of others, that the school must assume a larger responsibility for the vocational development of its

students. If the job is done correctly, fewer EMR students will need the services of sheltered workshops, DVR, and the employment service, and these agencies can concentrate on seriously vocationally handicapped persons. Since most EMR students are not significantly brain-damaged or otherwise medically disabled, they do have many positive abilities that can be converted to vocational assets. Most do have a measured intelligence that reflects a problem in learning abstract, verbal material such as that taught in school but this does not mean they cannot learn to successfully live and work in our society.

Follow-up studies have shown that EMR level students have much more potential than we frequently assume. Unfortunately, as pointed out by Kokaska (1970), there is still a tendency to place the mentally retarded in routine, repetitive, simple, and low-paying jobs when many could work successfully in more highly-skilled and highly-paid occupations. Studies such as the one of the U.S. Civil Service (Oswald, 1968) have clearly depicted the EMR's higher potentials on the occupational ladder.

Up to this point, the extent and quality of vocational programming for EMRs in the schools have depended upon the teacher's inclination, ingenuity, training, vocational experience, etc. Despite their lack of college preparation in the vocational area, some teachers have developed very good vocational programs. Other programs are "watered down" with students placed on jobs in the community with the hope that some vocational skills and interests will develop. One of the major problems that occur when DVR is involved is that the counselor often does not have enough time to really get to know the students because of his large caseload. It is the special education teacher who most often is responsible for the vocational development of the student.

The validity of this statement was reflected in a recent study we conducted at the University of Wisconsin (Stout) of secondary special education teachers of the EMR. Thirty-one major competencies needed by teachers of secondary EMR were identified. These were categorized into four curricular areas: academic, psyco-social, activities of daily living, and vocational. A questionnaire was sent to all secondary EMR teachers in Wisconsin asking them to rate the importance of these competencies. Seven of the 31 competencies were given the highest rating of "Very Important" and of these, five were vocational competencies. Competencies in providing vocational evaluation, work adjustment, job seeking skills, job tryouts, and placement were deemed "Very Important" for the teacher to have. Thus, we are now in the process of developing a teacher training program and an in-service program that will provide prospective and practicing secondary teachers of the EMR with these skills and knowledges. This workshop then is right in tune with the needs of the times as we see it. Let me briefly cover some points that I feel are important in the vocational evaluation, training, and placement of EMR students. More depth will be forthcoming during subsequent sessions of the workshop.

Vocational Evaluation

Many terms have been used interchangeably when talking about evaluating a client's vocational potential, i.e., prevocational evaluation, work evaluation, rehabilitation evaluation, and vocational evaluation. Usually, vocational evaluation and work adjustment are defined as separate components of the rehabilitation process. However, in the case of the mentally retarded, and perhaps of other less experienced individuals,

I propose that vocational evaluation must include work adjustment aspects before any real concrete statements can be made about the individual's vocational potential. Thus, I see vocational evaluation as consisting of the following components:

Vocational Evaluation			
1. Clinical assessment	2. Work evaluation	3. Work adjustment	4. On-the-job tryout

1. Clinical assessment. This assessment consists of four types: medical, social, educational, and psychological. Medical evaluation consists of the following assessments: physical capacity, general health, brain-damage, vision, hearing, speech, perceptual-motor functioning, coordination, dexterity, and any suspected or evident anomalies precluding optimal health and physical functioning. Besides pointing out limitations to vocational functioning, indications should be made whether treatment can modify or remedy some or all of them. After the medical assessments and treatments, the status of the student can be ascertained by listing assets and limitations as they pertain to vocational planning. Social Evaluation is extremely important to one's vocational success. The parents are very significant in the success or failure of the retardate. A study I conducted a few years ago (Brolin, 1969) found the parents most significant to the retardate's eventual vocational outcome. The retardate's social skills, interpersonal relationships, care of his personal needs, and ability to utilize leisure time must be evaluated. The lack of these skills, rather than inability to do the job, is the major reason for loss of employment.

Educational evaluation is important as these skills relate to jobs. Many jobs do not require a very high academic level but there is a certain level needed to care for one's everyday affairs. Additionally, higher level jobs call for higher academic achievement. Educational evaluation is right in the special education domain. Psychological evaluation has perhaps been overplayed over the years, as we have hoped that the psychologist could answer questions on vocational potential which were beyond his expertise. IQ scores per se are really insignificant as far as prognosticating the vocational potential of the EMR--studies have shown this time and time again. Where the psychologist can be of value is in ascertaining specific assets and limitations that are significant to evaluating vocational potential, e.g., verbal skills, performance skills, special interests and knowledges, etc. A psychologist also can contribute an assessment of personality, hopefully omitting meaningless diagnostic labels. Thus, the psychologist can be very valuable in pinpointing intellectual and personality strengths and weaknesses for eventual vocational programming.

2. Work evaluation. This assessment consists of the following: (a) intake and other counseling interviews, (b) interest, dexterity, and other standardized vocational tests, (c) work and job samples, and (d) situational assessment.

The importance of the interviews should not be underestimated. Valuable information on interests, needs, knowledges, and personality can be gleaned from these interviews. Standardized testing is often inappropriate for EMR students due to the verbal ability required or inappropriate norm groups. While there have been attempts to develop less verbal measures such as the Vocational Interest Sophistication

Assessment (VISA), the Geist Picture Interest Inventory, and the Job Preference Record, the validity of all of these measures is really questionable. I do not feel there really is any interest test that can be used with any sense of confidence. The Purdue Pegboard appears to be perhaps the best fine finger dexterity test to use. The GATB should be used with caution despite a recent study in Minnesota (Lofquist, Dawis, and Weiss, 1970) concluding that it is appropriate.

Work samples and job samples are becoming increasingly important components of the work evaluation process. Work samples are simulated tasks or work activities but not replications of any actual jobs. A job sample is a model or replication of a job or part of a job that exists in industry. Work and job samples range from very simple to extremely complex operations. Some of their advantages are: (a) they are more like jobs than tests, (b) they are more motivating, less anxiety-producing, and more appropriate for persons with cultural and language disabilities, (c) they may sample the actual operations of different jobs, and (d) employers are generally more receptive to clients who score well on work or job samples. Some of the disadvantages are: (a) many clients may not take work samples they feel are related to jobs they do not like, (b) it is difficult for any facility to develop enough representative job samples for all the major occupational families, (c) samples are expensive and time consuming to develop, and (d) there is still much subjective evaluation in their utilization. The Dictionary of Occupational Titles (D.O.T.) is a valuable asset in conducting job analyses and developing work and job samples.

Situational assessment is the typical technique used by sheltered workshops and is also oriented toward simulating actual work conditions.

Instead of focusing on specific work skills, as in the work sample or job analysis approach, this technique is concerned with assessing general work habits and behaviors. The client generally works on sub-contracted production-assembly work which is fairly simple in nature. Clients are systematically observed and rated on their work personality and compared to those behaviors deemed necessary to secure employment. This approach is considered by many who utilize it as the most feasible approach.

3. Work adjustment. This component is an extremely important aspect of the vocational evaluation process, particularly for the EMR student who is generally inexperienced and unmotivated for the world of work. During the initial work evaluation period, student deficiencies which may preclude successful entry into the world of work are noted. An individual work adjustment program is planned for each student which will eliminate these weaknesses. The work adjustment program provides for the development of adequate physical tolerances, changing of work behaviors, and the acquisition of new vocational related information and experiences.

A simulated work experience setting providing work activities and emphasizing productivity is one approach to work adjustment training. Individual and group counseling, although difficult to empirically prove, have been shown to be effective adjustment techniques. Behavior modification has been found to be perhaps the most effective technique for use with retarded individuals. The operant conditioning approach focuses on reinforcement to control and shape behavior. The goal is to alter the client's environment so appropriate behaviors are learned and maintained and inadequate behaviors extinguished. After a period of work adjustment, a more realistic assessment can be made regarding

the EMR student's vocational strengths, weaknesses, and potentials.

4. On-the-job tryouts provide the only truly realistic component of the vocational evaluation process. I prefer to make OJT separate from work evaluation because now the student-client is faced with performing an actual job under the evaluation and supervision of industrial and business people. Before placing the student on any community job, a complete job analysis should be made of the work to be performed.

Job analysis, to which this workshop will give considerable focus, is becoming much more recognized as a valuable method of evaluation. Job analysis focuses on describing the work to be performed and on required characteristics of the worker.

The Department of Labor definition of job analysis is that it is "the process of determining, by observation, interview and study, the significant worker activities and requirements and the technical and environmental factors of a specific job. It is the identification of the tasks which comprise the job and the skills, knowledge, abilities, and responsibilities required of the worker for successful job performance." Job analysis considers what the worker does, how he does it, why he does it, and the skill involved in doing it.

The job analyst can observe a new employee (or evaluee) right at the work place and give whatever training and instruction is needed before judging the person's potential for this type of work. Neff (1970) has stated that perhaps "the site of the vocational evaluator ought to be in the work place itself." Provided your retarded students are ready for this experience, the actual job tryout will be one of the best methods of making any real predictions about the student's vocational potential. The job tryout is the last component of the vocational evaluation process!

If the evaluator has done his job, the student should be ready for the experience and it should be most appropriate. It could be devastating if the evaluation and work adjustment up to that point have been insufficient because the on-the-job tryout should really reflect the vocational capacities of the student.

Some Considerations

In evaluating the vocational potential of the mentally retarded, it is extremely important to be aware of the following conclusions we can draw from research endeavors:

1. As a group, the retarded cannot be characterized by any specific personality characteristics. Because of their deficiency, however, they are subject to more stresses, conflicts, and frustrations and thus are more apt to develop behavioral disorders.

2. The learning of the mentally retarded is not consistently inferior to that of "normals." The ability to learn cannot be correlated with the ability known as intelligence. IQ is not an adequate predictor of the learning of the mentally retarded.

3. The mentally retarded are capable of learning more than we often think--but often they perform poorly at first. Thus, we must give them more than one trial on most evaluation measures to ascertain their learning potential.

4. Variables that often affect the learning of the retarded include clarity of directions, significance of materials-tasks, extent of early experiences, the method of original learning, and the length of the retention interval.

5. We must develop appropriate motivational procedures, teach the EMR to attend to stimuli (especially verbal), and use spaced rather than massed learning techniques.

6. Perceptual motor learning may present the most appropriate training for the mentally retarded, although they still can improve their skills in other learning endeavors.

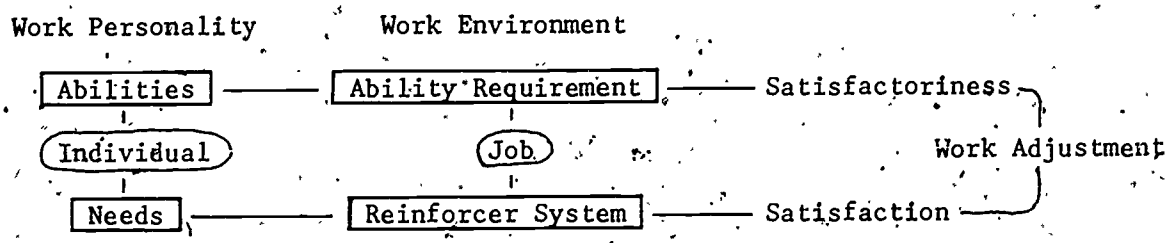
As secondary special education teachers whose responsibility it is to direct the vocational evaluation of your students, you may be wondering how in the world this can all be done in a reasonable manner. It appears, I'm sure, that you not only have to be a teacher but a social worker, psychologist, counselor, evaluator, placement specialist, etc. This may well be true, but someone has to take this important role and it is going to have to be you if the students are to be served adequately.

To my knowledge, there is no one measure or combination of measures that can, with a high degree of accuracy, predict the vocational potential of the mentally retarded, or any other group of people for that matter. There has been one attempt by the MacDonald Training Center in Tampa, Florida. After five years of research, they came out with their Vocational Capacity Scale (VCS) in 1963 which consisted of eight tests and rating scales. There has been just a little research, including mine, on the VCS and the conclusion is that it is useful, but far from a perfect predictor. Many studies have been conducted which attempted to determine what variables are most significantly related to the social and vocational adjustment of retarded persons. The research has pointed out that every variable studied has usually been found to be a predictor at one time or another. The type of statistics used, population sample, outcome criteria, contingency factors, and many other factors have contributed to this

phenomenon. All said and done, ability to do the job and get along with co-workers seem to be important variables, although IQ, academic level, and such factors are important for specific jobs. The interaction of client, family, community, and helping agency variables all seem to determine the retardate's work adjustment.

A Vocational Evaluation Model

How do we make any sense out of the mass of data that we collect on our clients? Obviously we must have some systematic framework or model under which to operate. One that I would like to suggest for your consideration is the Minnesota Theory of Work Adjustment which is concerned with placing the individual on an appropriate job. Under this theory, work adjustment depends on the correspondence between the individual's work personality and the work environment. The individual's work personality consists of his abilities and needs; the work environment consists of the abilities required for satisfactory work performance and the needs that are potentially satisfiable by the reinforcer system of the job. This can be depicted as follows:



When the abilities of the individual correspond to the ability requirements of the job, there is satisfactoriness; when there is correspondence between the individual's needs and the reinforcer system of the job, there is satisfaction. Thus, if there is both satisfactoriness and satisfaction,

there is work adjustment and stability of tenure on the job. What are the possible measures of the various elements of the theory?

1. Abilities: Work samples, situational assessment, on-the-job tryouts, GATB, Purdue Pegboard, and other vocational aptitude tests, VCS, and the various clinical assessments.

2. Ability requirements: DOT, job analysis, Guide to Jobs for the Mentally Retarded, Occupational Adjustment Patterns.

3. Needs: Minnesota Importance Questionnaire (MIQ), interest inventories, personality measures, expressed needs, past history, etc.

4. Reinforcer System: Occupational Reinforcer Patterns (ORPs), visits to job sites.

The Minnesota Theory of Work Adjustment provides a systematic framework for operating a vocational evaluation and placement program. It serves as a method for obtaining information about work personalities, abilities, needs, and work environments in order to find the correspondence between all these factors that will lead to successful work adjustment.

A successful and effective vocational evaluation program can be designed within the school structure and be complemented by an appropriate community job-site experience. By utilizing the techniques that I have mentioned, you will be able to enhance the opportunities for our mentally retarded citizens.

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JOB ANALYSIS - THE KEY TO EFFECTIVE JOB-AND-PEOPLE MATCHING

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This discussion will center around the "What," "How," and "why" of job analysis, and will provide a background for practicing basic analysis skills.

Before a mutually understandable discussion can evolve, certain basic definitions must be established. Since we're discussing job analysis, let's define our subject. Job analysis is a systematic way of observing jobs, determining the significant worker requirements, physical demands and environmental conditions, and reporting this information in a concise, usable format. In the simplest terms, job analysis can be described as "Watch" and "Ask." Observe the worker at the work site, and ask questions about anything that's not clear.

Other related definitions which need to be established at the outset of our discussion include:

Job Task, (Job Duty) - unit of work activity, forming a significant part of a job.

Position - a number of like tasks, requiring the services of one worker.

Job - a number of like positions, with an indication of important variables, usually refers to employment in one particular establishment.

Occupation - composite jobs, identifying common requirements, within an industry or cross industry.

To illustrate - The occupation of typist encompasses many different jobs involving typing at different establishments. Within one firm, we may find many clerical positions, where workers perform typing tasks, in

various departments and varied related assignments. The depth of analysis performed depends upon the use to which the resulting information will be put. Time and motion studies require in-depth task analysis. Worker evaluation is dependent upon position analysis. Job placement and job development activities should be based primarily on job analysis. The development of occupational information, or any other broad-based study, would be best served by an occupational analysis, which would identify the commonalities in job requirements, but would also point out the most significant variables.

Our discussion will be confined to job analysis, but the basic techniques would be applicable to any of the other investigative situations.

First, let's learn the Job Analysis Formula:

> "What - the worker does (the worker actions), how he does it (the machines, materials, equipment, work processes involved) and why he does it (the objective or purpose for the worker action)."

Another more comprehensive explanation of the Job Analysis Formula expresses it as "What the worker does. What gets done. The Machinery, Tools, Equipment, Work Aids (MTEWA) and the Materials, Products, Subject Matter, and Services (MPSMS) involved in the doing."

With our preliminary definitions out of the way, we can turn directly to our subject of how to perform a job analysis. Many different techniques for analyzing jobs exist. The methods I'll be describing are quite basic and easily learned. Elaboration can be added as desired after practice.

Three basic ingredients of a job analysis are:

(1) Identification (2) Work Performed (3) Performance Requirements

Each of these factors will be briefly discussed and explained.

IDENTIFICATION: The job title(s), industry, firm name, and other background data desired by the analyst. Usually, the Dictionary of Occupational Titled (DOT) is the best source for a standardized job title. You will also want to enter the employer's job title (EJT), to form a base for mutual understanding. You may want to identify the type of establishment, e.g., bank, service station, job printer, etc., in order to set up a job development and placement file by industry. The name of the firm, and possibly the identification of the individual responsible for hiring may also be helpful. (See Sample #1)

WORK PERFORMED: This is the "meat" of the job analysis, in terms of the importance of the data. Thus, it deserves our major emphasis and attention. This is the section that brings the job analysis formula into play, and challenges you to develop and strengthen your abilities to observe, to question, and to summarize the information you discover concisely and meaningfully.

Information on job requirements can be obtained in many ways. You may read DOT definitions, study plant job descriptions, read job guides, job briefs, or other types of occupational information. If you want to develop a job for X worker with Y employer, however, you need to know exactly what the job requirements and working conditions are at that specific job site. The best source of job information is an on-the-spot visit, with opportunity to observe the work being performed, and to question the employer, supervisor(s) and worker(s).

Before visiting the firm, you should call for an appointment, explain the purpose for your visit, and ask that workers being observed, supervisors, and union representatives (if appropriate) be informed as to the reason for the job study. Public relations efforts at this point can be most helpful

in preventing apprehension and anxiety among workers who find their jobs under scrutiny.

Ideally, you should study background materials prior to the visitation. Such materials might include company brochures, and DOT or other job descriptions for the jobs you will be studying. Such advance preparation will allow you to capitalize on the observation and to ask more pertinent questions.

If this is your first visit to the firm, you should ask for a plant tour prior to the observation. This will help you see the specifc job in relation to all of the other jobs in the plant, and may provide tips for subsequent job development and placement efforts.

JOB OBSERVATION: Be courteous, alert, and to-the-point. Spend enough time to obtain the pertinent information, but don't be disruptive. Many workers are on an incentive plan, or tight production schedule, and both the employer and employees will resent long interruptions.

Be aware of the surroundings in which the job is performed, i.e., the lighting, temperature, noise level, etc. Notice whether the worker stands or sits, whether he must lift or carry, and discover what other physical demands are involved in the work performance.

Try to establish the flow-of-work, i.e., the sequence in which the tasks are performed. Job structures range from cyclical jobs, where there is a set pattern of tasks, and a short work cycle - to the functional job, where there is no established task pattern, and only a small portion of the complete work cycle can be observed during one visit. Cyclical jobs include assemblers, machine tenders and operators, and such clerical jobs as typists and file clerks. Functional job categories may include craftsmen, highly skilled clerical and technical workers, as well as

managerial and professional jobs. Obviously, your job analysis technique will vary with the type of job; since information on cyclical jobs may be obtained primarily by watching, while the functional job will entail much more asking -- to discover the job requirements not present during the observation.

Do not take copious notes during the observation or interview. Use a checklist or similar format to record essential information, and use your time to look, ask, and listen. (See Sample #2)

If more than one worker is performing the same job, watch several different individuals and try to pick the average worker. Gearing your observation to an unusually slow or to an unusually capable worker may distort the job requirements picture which you obtain.

WRITING THE WORK PERFORMED SECTION

1. Organize the major tasks, or job elements, according to the flow-of-work, e.g., getting materials, starting machine, tending machine, off-bearing, disposition of materials to next work station, etc. If the worker must consult recipes, blueprints, specifications or other form of instructions before proceeding, this should be noted.

2. Begin each statement with present tense, worker action verb, e.g., tends, operates, positions, inspects, instructs, etc. Describe what the worker does, not the machine action, e.g., "Tends mills to knead, mix, and blend rubber for further processing." The worker is involved only with the tending, while the machine performs the rest of the function.

3. Omit articles (a, an, the) and all other words not pertinent. Avoid vague descriptions such as large, small, heavy, etc. If size or weight is important in understanding the worker action, express the dimensions or

pounds involved. Otherwise, omit such information from the Work Performed section, and cover such data in the Physical Demands section.

4. Avoid the word "uses" as worker action verb. Instead, select a verb which depicts the worker action, such as "Assembles widget, using handtools such as screwdriver, wrench, and pliers."

5. Introduce the description with a summary statement which identifies the job, distinguishes it from other jobs, and answers the "What," "How" and "Why" questions. Example: "Tends any of variety of machine tools, such as lathes, drill presses, milling machines, grinders, or special purpose machines to machine metal workpieces to specifications on production bases." Does this DOT summarizing sentence answer the JA Formula questions and perform the other functions of an introductory statement?

6. For ease in reading, divide the major tasks into numbered paragraphs.

7. If task paragraph is lengthy and complex, begin with flag statement, such as "Prepares materials," "Tends machine," "Maintains equipment," etc.

8. If helpful, indicate the comparative amount of time involved with each task and the percentage of skill involved, with skill expressed in a 3-point gradation, e.g., 1-least difficult, 2-intermediate, 3-most difficult. Regardless of a job's skill level, it will contain "3" tasks and "1" tasks. This information may be of value in restructuring a job to illustrate or demonstrate the demands of the job.

PERFORMANCE REQUIREMENTS SECTION

This section of the analysis describes the skills, knowledges, and

abilities required for the tasks described in the Work Performed segment. Among the factors you may want to consider are:

1. Responsible For: Consider whether worker is responsible for such factors as the quantity or quality of production, public image of the firm, his own or other worker's safety, maintenance of equipment, supervision over others, or cooperation with others.

2. Job Knowledge: Describe any knowledges of processes, formulas, materials, etc., the worker must possess to perform. This segment can be related to the "Analysis of Job Requirements" form.

3. Judgment: Determine whether worker must use own judgment, or whether the job is so prescribed and structured that no decisions are required.

4. Degree of Supervision:

5. Are work tasks repetitive, routine, or varied?

6. Machine Controls - left hand, right hand, both hand, hands-and-feet?

7. Advancement Opportunities: Outline possibilities for promotion or transfer.

PHYSICAL DEMANDS AND ENVIORNMENTAL CONDITIONS

Complete this form or similar format, and comment on the most significant demands for this job.

TO SUMMARIZE

1. Job analysis is the best method of obtaining accurate job requirements information for job development, job placement, and curriculum development for vocational-technical programs.

2. Job information can best be obtained at the job site, through personal visitation.

3. Both the employer and workers on the job to be observed should be informed in advance of the purposes of the visit.

4. When observing jobs, determine the flow-of-work, and note physical demands and working conditions, using a checklist rather than taking extensive notes.

5. Each job description should contain three sections: Identification, Work Performed, and Performance Requirements.

6. Preface the Work Performed material with an Introductory Statement, to identify the job, and distinguish it from other jobs.

7. Provide a task description for each major task, identifying the What, How and Why of worker actions. Start each sentence with expressive worker action verbs, and prune all excess words.

8. Describe the Performance Requirements deemed most appropriate.

9. Prepare the "Physical Demands and Environmental Conditions" form.

10. If desired, prepare the "Analysis of Job Requirements" form, to identify the most basic skills and abilities required for job performance.

Sample #1

J O B P R O F I L E

IDENTIFICATION

DOT Title(s) | DOT Code(s.) | Employer's Job Title(s)

Name of Firm | Address | Person to See | Telephone

Union | Starting Salary | Fringe Benefits

WORK PERFORMED

Sample #1 (cont.)

PERFORMANCE REQUIREMENTS

Responsible For:

Job Knowledge:

Judgment Required:

Type of Supervision:

Type of Work (Repetitive, Routine, or Varied):

Advancement Opportunities:

Other Requirements (Analysis of Job Requirements Attached?):

Employer Tests:

Sample #2

JOB ANALYSIS CHECKLIST

JOB TITLE (Plant Title)_____

Alternate Titles_____

EMPLOYER REQUIREMENTS

Education		Experience/Training	
8th Grade	_____	30 days or less	_____
2 years High School	_____	3-6 months	_____
H.S. Graduate	_____	1-3 years	_____
Apprenticeship (years)	_____	3-5 years	_____
Technical or Business school	_____	over 5 years	_____
College Graduate	_____	Amount and type of	_____
Type of Degree	_____	Training required	_____

JOB SUMMARY (WHAT, HOW, WHY)

Machines Operated (specify):_____

Measuring Devices Used (specify):_____

Specific Skills Required (such as welding, blueprint reading, plumbing, etc.)

_____

Knowledge of Formulas or Processes (specify):_____

Is Machine Operator Responsible for:

Set-up _____ Minor repair/adjustment _____

Major Repair _____ Lubrication _____

Other Required Job Duties Not Observed (specify):_____

_____

PHYSICAL DEMANDS

Strength Requirement	Occasionally (less than 1/3 of time)	Frequently 1/3-2/3	Continuously Over 2/3
S - Sedentary (to 10#)	_____	_____	_____
L - Light (to 20#)	_____	_____	_____
M - Medium (to 50#)	_____	_____	_____
H - Heavy (to 100#)	_____	_____	_____
VH- Very Heavy (over 100#)	_____	_____	_____

HAZARDS

No Hazards_____

Mechanical Hazards_____ Safety Devices_____ Protective Clothing_____

Environmental Hazards_____ Fumes_____ Odors_____ Mists_____ Heat_____ Cold_____

SKILLS, KNOWLEDGE, ABILITIES

Responsible for (indicate monetary value and results of negligence):

Care of Equipment_____

Appearance and/or quality of product_____

Supervision of others_____

Safety of others_____

Cooperation of others_____

Other responsibilities (specify)_____

Job Relationships:

Promoted From_____

Promoted To_____

Supervised by_____

Supervises (number of workers and titles)_____

Sample #3

ANALYSIS OF JOB REQUIREMENTS

Name of Firm(s):
DOT Title and Code:
Plant Title:

Indicate the importance of each job element by noting the frequency with which it occurs.

N -- Element NOT required for successful job performance.
O -- Element required occasionally.
F -- Element frequently required.
C -- Element constantly required.

Job Requirements	Frequency	Job Requirements	Frequency
1. COMPUTATIONAL SKILLS		5. MANIPULATIVE SKILLS	
A. Adding		*A. For simple hand tools and utensils	
B. Subtracting		*B. Operation of simple machines, manipulating controls and making minor adjustments.	
C. Multiplying		C. Operating cash register	
D. Dividing		*D. Performing hand work, operations such as folding, sorting, slicing, assembling, etc.	
E. Simple Fractions		*E. Operate and service motor vehicles	
2. MEASUREMENT SKILLS			
A. Number Recognition			
B. Change Making			
C. Price Evaluation			
D. Use rulers or tape measures			
*E. Use of simple guages			
*F. Use of kitchen measuring devices			
3. COMMUNICATION SKILLS		6. MISCELLANEOUS SKILLS	
A. Reading - labels or written instructions		A. Ability to work with tools and equipment safely	
B. Following recipe instructions		B. Ability to accept responsibility for safety of self and others	
C. Comprehending oral instructions		C. Ability to work in harmony with others	
D. Writing brief notations		D. Willingness to accept responsibility for handling of money	
E. Writing customer's order		E. Ability to work under close supervision	
F. Talking with supervisor and/or co-workers		F. Ability to work independently or under general supervision	
G. Talking with public			
H. Ability to use alphabet			
I. Use of telephone			
J. Use of telephone directory			
4. PERSONAL ATTRIBUTES		7. OTHER SPECIFIC SKILLS	
*A. Suitable attire		Describe:	
*B. Hygienic requirements			
C. Pleasant Manner			
D. Poise			
E. Tact in Dealing with Public			

* Specify on reverse side.

Sample #4

JOB ANALYSIS -- Style of Writing

WORK PERFORMED Section (JOB SUMMARY)

I. Sentence Structure

Each sentence in this section answers the 3 basic questions of the job analysis formula.

What does the worker do? (Specific action taken)
How does he do it? (Methods used and knowledge applied)
Why does he do it? (Purpose of job)

II. Use of Words

A. Avoid vague, general words subject to many interpretations.

B. Select meaningful, accurate, descriptive worker action verbs such as the following:

Physcial Action Verbs			Mental Action Verbs
adjusts	feeds	removes	coordinates
advances	files	repairs	corrects
alines	forges	sands	devises
attaches	fuses	screws	directs
bends	grooves	shapes	determines
binds	hammers	slots	evaluates
bolts	hones	solders	inspects
chamfers	inserts	sorts	instructs
clamps	miters	splices	oversees
coins	perforates	sychronizes	persuades
compresses	places	taps	suggests
covers	planes	transports	tests
creases	polishes	tumbles	verifies
drills	positions	weighs out	
erects	punches	welds	
extrudes		winds	

Obviously, this list is not all-inclusive, but may prove helpful in selecting expressive, explanatory verbs.

Sample #5

PHYSICAL DEMANDS AND ENVIRONMENTAL CONDITIONS

NAME OF FIRM(S) _____

_____

JOB TITLE _____

DOT TITLE AND CODE _____

PHYSICAL DEMANDS			COMMENTS
1. STRENGTH			
a. Standing	____%		
Walking	____%		
Sitting	____%		
	Frequency	Weight	
b. Lifting			
Carrying			
Pushing			
Pulling			
2. CLIMBING			
BALANCING			
3. STOOPING			
KNEELING			
CROUCHING			
CRAWLING			
4. REACHING			
HANDLING			
FINGERING			
FEELING			
5. TALKING			
Ordinary			
Other			
HEARING			
Ordinary Conversation			
Other Sounds			
6. SEEING			
Near Vision			
Far Vision			
Depth Perception			
Color Vision			

RATINGS: PHYSICAL DEMANDS: S L M H VH 2 3 4 5 6

STRENGTH REQUIREMENT: S - Sedentary (to 10#), L - Light (to 20#), M - Medium (to 50#), H - Heavy (to 100#), VH - Very Heavy (over 100#)

FREQUENCY SCALE: O - Occasionally, less than 1/3 of time, F - Frequently 1/3 - 2/3, C - Continuously, over 2/3

Sample #5 (cont.)

ENVIRONMENTAL CONDITIONS	FREQUENCY	COMMENTS
1. ENVIRONMENT. Inside _____% Outside _____%		
2. EXTREME COLD WITH OR WITHOUT TEMPERATURE CHANGES		
3. EXTREME HEAT WITH OR WITHOUT TEMPERATURE CHANGES		
4. WET AND/OR HUMID		
5. NOISE Injurious to ears		
Distracting for type of work performed		
6. HAZARDS Mechanical		
Electrical		
Burns		
Explosives		
Radiant Energy		
Other		
7. ATMOSPHERIC CONDITIONS Fumes		
Odors		
Mists		
Gases		
Dusts		
Poor Ventilation		
Other		

RATINGS: Work Conditions: Inside Outside Both 2 3 4 5 6 7

PROTECTIVE CLOTHING OR PERSONAL DEVICES FURNISHED OR REQUIRED

MATCHING STUDENTS WITH JOBS
A REAL CHALLENGE

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Matching students or clients with jobs should never become a mechanical process of simply balancing facts regarding employer requirements with facts regarding client capabilities. Students are individuals, each with his or her unique mixture of problems and capabilities. Accordingly, objective data can never fully substitute for the knowledge and judgment of experienced coordinators in developing appropriate jobs or work experience station.

However, systematic use of job requirement data and ability assessment information can greatly facilitate the matching process, and minimize the amount of trial and error involved.

The first step, job analysis, has been discussed. If a form such as the "Analysis of Job Requirements" can be completed, to indicate the most basic tasks required, this data will be a good supplement to the job profile, and a handy tool for job development, or when discussing possible job re-structuring with the employers.

We then proceed to the student, or client, and examine case summaries or other reports to examine or develop the student ability profile. Again if the form "appraisal of abilities" or similar format is available, or can be readily developed from case history summaries and reports, this data arrangement will permit a quick comparison of basic job requirements and basic student abilities. These analysis and appraisal forms are merely a suggested arrangement of data for ready reference, and could be modified or altered as needed.

Many tools and devices are helpful in assessing the individual's capabilities and in comparing this information with available information about jobs. This discussion will be centered around what I consider one of the most useful work aids, the Dictionary of Occupational Titles (DOT). Actually this publication represents a series of volumes each with its own particular contribution to counseling, job development and placement.

Just a brief comment on the background of the DOT. This instrument represents what I consider the most complete job classification system now available anywhere. It is a valuable tool for obtaining job information, for coding and classifying occupations, for developing job clusters, and for developing base materials for guidance and job development.

The DOT job definitions were developed by trained full-time occupational analysts who performed on-site job analyses (each job was investigated by different analysts in different parts of the nation, and then a composite definition and rating system developed). Volume I of the DOT contains the job titles, codes, definitions, and alternate titles for over 23,000 different jobs bearing more than 35,000 job titles.

The digits of the code number go much farther than simply identifying the specific job for classification purposes. With just a little practice, you can discover a considerable amount of job information from the code number alone. To illustrate, the first three digits of the code represent the occupational group arrangement, and identify the job in terms of work field, material, product, service and/or industry. The first digit indicates one of 9 occupational categories, while the next two add extra details.

However, the part of the code most important to guidance and job development and placement work is the last 3 digits. This part of the code relates to the concept that every job requires the worker to function to

data, people, and things, in varying degrees. The 4th digit represents Data and provides a hierarchy of functions ranging from "No Significant Relationship" to the highest function of "Synthesizing." People, the 5th digit, includes functions ranging up to "Mentoring," while the 6th digit, Things, indicates functions from "Handling," through "Manipulating" and culminating with "Setting-Up." These worker functions then serve as the basis for grouping or clustering jobs into "Worker Trait Groups" with common functions and similar significant requirements. The worker traits arrangement begins with the 22 Areas of Work, and is then subdivided into the Worker Trait Groups, each with its narrative description, qualifications profile, list of related classifications, and the grouping of occupations within that particular arrangement. Information concerning the work performed, worker requirements, clues for relating applicants and requirements, and training and methods of entry are included in the narrative for each Worker Traits Group. The Qualifications Profile indicates the following characteristics of the jobs within a given Group: General Education Development, Specific Vocational Preparation, Aptitudes, Interests, Temperaments, and Physical Demands. All of this information is found in Volume II of the DOT.

Supplement I to the DOT lists most of these characteristics for every job in the DOT in numerical order. Supplement II, which should be most helpful to you in your work, has the characteristics arranged by Worker Trait Group and then by individual occupation.

This long-winded introduction was provided to pave the way for the initial approach to job matching, i.e., exploring the varied possibilities for the student. For example, assume that the student has had food service experience or training as a Kitchen Helper. The DOT code for this

job would be 318.887, with the digits 318 indicating Service occupations and Kitchen Work specifically, while the 887 indicates the "Handling" Worker Traits group. This group is located on page 360-369 of Volume II of the DOT. Referring to this section, we find the common characteristics for a very large number of jobs. If necessary, we could then turn to Supplement 2, and examine the listing of worker characteristics for each individual job in this worker traits group. By reviewing the case information for the students, we should be able to narrow down the search for specific jobs which have similar characteristics. Obviously, the final step is to locate and analyze jobs locally which might be suitable.

This process actually occurs much more rapidly than would seem possible from this lengthy discussion. As with any technique or skill, repeated practice soon develops expertise.

Use of simple formats such as the Analysis of Job Requirements and the Appraisal of Abilities will facilitate the final matching process by graphically illustrating the characteristics of both the student and the job.

To summarize, job matching is not complicated. The ingredients required are: a systematic organization of significant information about the student and the job, generous doses of common sense, and sound intuition.

Generalized job information can be obtained from the various volumes of the Dictionary of Occupational Titles, job descriptions, and other similar materials. Specific job requirements information can be derived from job analyses.

Student appraisals furnish many different types of essential job matching data. These data may be obtained by psychological and work sampling tests, by observation, and by clinical diagnosis.

Job matching can start by exploring characteristics needed for clusters of jobs, narrowing down to several specific jobs, and finally determining which of these jobs may be available locally. Final job matching may often involve assisting the employer to restructure the job, modifying tasks slightly so that the worker may more easily adapt to the job requirements.

Job/student matching is challenging and often frustrating, but an effective matching of individual and job can be one of your job's most rewarding and satisfying experiences.

Sample #1

APPRAISAL OF ABILITIES

Name _____

ABILITIES	POSSESSED BY APPLICANT		COMMENTS
	YES	NO	
*1. Can perform simple arithmetic operations.			
2. Can make change and understand money value.			
*3. Able to read and understand numbers on rulers, gauges, and other simple devices.			
4. Can communicate orally.			
5. Can read labels, recipes and instructions.			
6. Can write simple instructions or notations			
*7. Can manipulate appropriate tools safely.			
*8. Can operate appropriate simple machines and apparatus.			
9. Has good personal appearance, neat, clean etc.			
10. Adapts to change: a. with difficulty			
b. moderately			
c. easily			
11. Concentrates amid distractions.			
12. Maintains composure under tension.			
13. Works easily with people.			
14. Reliable, prompt and punctual. Follows an assignment through to completion.			
15. Able to meet and deal with the public.			
16. Able to work under close supervision.			
17. Able to work alone, with only general supervision.			
18. Efficient in use of expendable supplies.			
19. Remembers more than one instruction at a time.			
20. Able to use telephone.			
21. Able to use telephone directory.			
22. Able to adjust socially to community.			
23. Has [illegible]sure time outlets.			
24. Knows and can use alphabet.			
*25. Able to operate and/or service motor vehicles.			

Sample #1 (cont.)

JOB KNOWLEDGE:

JUDGEMENT:

INITIATIVE:

ADAPTABILITY:

PERSONAL CHARACTERISTICS (Appearance, quality of voice, etc.):

TEMPERAMENT & INTERESTS:

APTITUDES:

GENERAL (Communicative ability, able to handle confidential data, etc.):

EXPANSION OF JOB DUTIES:

VOCATIONAL EVALUATION THROUGH THE USE OF WORK SAMPLES

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INTRODUCTION

Work is no longer only a means of earning a living and providing for ones own physical well-being. It actually has become a way by which man finds his identity in society. The number of workers involved in production goes down steadily. This means then that the one significant thing, in terms of our changed society, is that education becomes the link between the individual and work, or the link between an individual and his place in society.

The employment situation today is one in which many of the country's most educated and talented people are unemployed. This makes it much more difficult on the mental retardate - unless - we know how and have workable systems for assisting these people in finding their place to contribute in our world of work. Our society insists that everyone works. Our whole educational system prepares a person to go to work. However, we know that few high school graduates are prepared for their place in society upon leaving high school. This must not happen to the person disabled by mental retardation. Our goal with MR's is to help them find what kind of work they best qualify for. Vocational evaluation and exploration through work sampling can help in this endeavor.

During the growth and exploration stages of a person's life, the individual is engaged in learning about himself and trying new experiences

to determine the kind of person he wishes to be and become. To make the best decisions for himself the individual must know himself, something about the occupational world and its demands, and something about the relationship between his characteristics and those required by occupations.

The mentally retarded's experiences are most often very limited. It is the schools' responsibility to help provide experience that will permit the individual to learn about himself and the occupational world. However, this must be done on a standard and level they understand. The mentally retarded need training more than the other students. Our schools must prepare them for entry level jobs. The schools must help in the transition from school to work. The work sampling system can be useful in accomplishing this.

DEFINITION

The terms "vocational evaluation" and "work evaluation" are often used interchangeably and equivalent. Usually, however, vocational evaluation is defined as consisting of evaluation for pertinent medical, psychological, vocational, educational, cultural, social and environmental factors. Work evaluation, on the other hand, is never defined in these broad concepts. It usually refers to the evaluation of an individual's vocational strengths and weaknesses through the utilization of work, real or simulated. For our purpose here, vocational and work evaluation will be considered synonymous. It will consist of assessment of strengths and weaknesses and provide work exploration, primarily through work samples.

Rationale for Work Samples

This paper is concerned primarily with the EMR's, Educable

Mentally Retarded. Where did this term come from? What does it mean? Unfortunately, it doesn't have the same connotation for all people. Some people will assume that a mentally retarded person has no abilities. Of course, all of us who work with EMR's know this is not true. I question whether we should even be putting these labels on students at all. They are given this label because they have demonstrated a lack of academic talent. Is this to say that they don't have any other talents? I don't think so. We have had mentally retarded youngsters in the Career Exploration Center who have demonstrated strong mechanical abilities. Some have demonstrated abilities in other areas, depending on their interest. There are indications that intelligence is made up of many different factors. Guilford has classified 120 factors of human intelligence (Guilford 1967), over half of which there are now tests for. Only one of these factors is classified as academic talent. L.L. Thurstone has identified seven separate factors of intelligence, viz., verbal comprehension, word fluency, numerical ability, space visualization, memory, perceptional ability and reasoning. Other researchers have also found that intelligence is made up of many factors. In view of this evidence we are probably doing great injustice to people lacking academic talents. If we are going to label students as mentally retarded, we had better be prepared to identify what abilities they do have.

For the mentally retarded and other students who may not possess verbal and academic talents, the activity approach through work sampling presents a means of eliciting and modifying behavior where verbal and symbolic techniques fail. Work samples (W-S) can assess with insight the degree and direction of the students' adjustability

to work. W-S also permit the teachers and counselors to gain an understanding of what the student can do and learn, and to uncover latent signals of talents leading to appropriate vocational choice. Since work samples are simulated job duties, and do not resemble a formal test situation, the less threatening atmosphere facilitates less defensive behavior while encouraging the student to assert his capabilities. Thus, he will reveal his strengths, weaknesses and potential for certain kinds of work. A work sample will often give the student a real insight into his ability to perform. Also, the nature of the job will be revealed, which will help the student determine his true vocational interest. An accurate evaluation of the student's potential, interest and capabilities for work is essential. Without it, a method for understanding the student's problem of adjusting to training and/or job is lacking.

The broad objective of vocational evaluation is to develop a picture of the student from a vocational viewpoint. This includes: A picture of the student's worker-traits and how they compare to minimal requirements of selected jobs or work areas, physical capabilities, learning ability, personality characteristics, social competence and other vocational factors.

The use of work samples hold several advantages when used in satisfying the above objective. Some of the advantages are:

1. W-S look more like work and often will hold the student's interest as opposed to psychological testing.
2. The students can see how well they are performing and better understand their vocational interest and abilities; and therefore holds more meaning for the individual.

3. The student discovers for himself the work tools and requirements of different kinds of work.

4. Teachers can observe work behaviors.

5. Work samples are not biased due to reading, speech, or education.

6. Maybe most important, work samples have built-in success experiences providing unconscious motivation.

Work sampling does have some disadvantages. They can be expensive if one tries to duplicate work tasks evolving expensive equipment or materials. However, in most cases this is not necessary. Work samples could also be considered time consuming, but they are still much quicker and more convenient than sheltered workshops or actual job experience. The time and money spent for evaluation can be far more economical in the long run. Much time and money can be spent on training and job development only to find out the student is not suited for or interested in the particular job. You not only have wasted time and money but may have jeopardized future placement with that employer.

What Is Work Sampling

Work samples are real job tasks, not formal tests and substitute job production for standardized tests in measuring ability, skills and potential. A work sample may be an actual job administered and observed under standard conditions. It may be a mock-up of a component of a job. It may be a task made up by the teacher to resemble an actual job. They all are designed to measure traits important to successful employment. Work samples can do two main things: Provide realistic work exploration, and assessment of abilities not normally discovered through regular school routine.

The purpose of work samples are: to observe behavior, to determine potential for training, job placement or other needed services, as a

therapeutic milieu for effecting change in vocational self-concept, as a diagnostic tool, and as a prognostic tool.

Sound evaluation needs more than an estimate of conventional strengths and limitations. It must yield an index of ability to change and improve, a measure of potential to increase the repertory of responses, to modify self-attitudes and behavior patterns. A work sample program seeks to find out what an individual has going for him now, where he can go with more education and training. It also seeks to uncover latent signals leading to appropriate vocational choice.

Setting Up Work Samples

Sustained observation, focused on significant work related factors and performed in a systematic way, is the key to sound work evaluation. The tasks selected as work samples should be simulations of activities that would be encountered on a regular job and which require the use of standard tools and equipment. If at all possible, the work sampling environment should reflect the atmosphere of the real work setting. Occupations are broken down into the various components and factors that are found within the given occupation. The components or factors are used as work samples. The first work sample attempted by the student is always the simplest and most basic operation of the occupation. The work samples should range in complexity from very simple to difficult. This permits successful experiences but yet will tax the student's upper limit.

We need to carefully examine the objectives we are trying to reach when establishing work samples in order to decide on the methodology. The simplest goals of work sampling is to answer questions. Is the student capable of holding down a job at this time? If so, at what level?

If not, why not? Is the student ready to decide on a job or training area? If so, what? If not, why not? What is the plan to bring about student and/or environment change so the student can be successful.

Some basic fact to be measured and some suggested means of measuring them by work samples are:

1. Verbal - using tape recorder or telephone.
2. Numerical - counting, filing, weighing or measuring.
3. Reading - reading safety signs, direction and travel signs, filing alphabetically and sorting mail.
4. Writing - tasks involving written instruction, simple note for directions or filling out forms.

In deciding which occupations to develop work samples on, look at the type of jobs that are feasible for the range of student to be involved in the work sampling program. Also exmaine the job opportunities in your community available to the EMR student. Before developing your work samples for a given occupation, you will need to do a job analysis of that occupation. A job analysis is a process of defining the significant worker traits and requirements of the specific job.

Once these traits have been determined, design the work samples to measure the traits. By measuring the student worker traits with the work samples and comparing them with the traits required to do the job, you can get a level of attainment for the student within the occupation.

The Dictionary of Occupational Titles (D.O.T.) and its Worker Trait Group Arrangement has much of this work done for you. Your

school more than likely has a set of D.O.T. Check with the school counselor or library.

Drawing Useful Information From Work Samples

The results or information drawn from a work sample will depend greatly on the teacher or person (evaluator) conducting the work sample. The evaluator will want to know what kind of information can be expected from the work sample, then carefully observe the student and record observations as they occur.

There are basically two kinds of information gained from work sampling: information about the student, and information for the student. The student will find out for himself such things as: What is expected of a worker, which kind of work he likes and dislikes, what kind of work he is best at and what adjustment he may need to make in order to be successful. The evaluator will want to sit down with the student and discuss the results of the work samples. This will be an opportunity for the evaluator to check on the student's perception of himself. If he is being unrealistic, or is unsure of some results, this will be the time to go over it with him.

Information about the student's worker traits will be gained by a comparison of actual behavior with the job requirements. If the student was not successful on work samples at the level needed for successful employment, the problem needs to be recorded. This statement will give information about work habits, physical capacities, learning ability, and other vocational factors. The amount of instruction needed and retention of instruction should also be recorded. This provides information on his learning ability. In most cases the student should be given repeated attempts on work samples he is having difficulty with.

This is up to the discretion of the evaluator. The student may learn to do the task after several tries. This will not only reveal learning levels but should also reveal the potential for growth. The highest work sample successfully completed will indicate the level of employment for the student within that occupation.

Reporting Results

The effective vocational evaluation report is a logical, well-planned, carefully written means of communicating vital vocational information about a student. The report must be concerned with a student's total functioning as it relates to work. A mere listing of results of specific work samples will not be adequate and neither will listing worker traits or a statement that the student worked well in a selected work area. The report should clarify the vocational strengths, weaknesses, how well the student meets selected minimal vocational criteria, trainability and level of training, effective reinforcers and key factors in bringing about change.

The effective report will contain only significant vocational findings that have been separated from trivial or unessential information. Clarity results because the evaluator learns early in the evaluation what it is that he needs to know about a client. He knows the questions to be answered and he has set up a plan for obtaining answers to the questions. The report should answer these questions.

The report will discuss a student's vocational strengths and weaknesses, interpersonal relationships, maturity, dependability, acceptance of supervision, learning problems and general employability and adjustment problems. It may discuss how well a student fits requirement for a particular job or an occupational group by comparison with the Dictionary of Occupational Title Worker Traits. The evaluator should predict the probability of

success in a specific job or training, and the type of assistance that may be helpful to the student. The report should also reflect some personality information. How he reacts in interpersonal situations, accepts supervision and criticism and his frustration levels are all important.

In testing your report, answer these questions: Is this report really telling anyone anything, is this report worth the money spent for evaluation, does it tell anything you didn't already know, does it point out assets or liabilities?

Existing Vocational Evaluation Facilities

Vocational evaluation has been done for years but primarily only in sheltered workshops like Goodwill and in the Division of Rehabilitation and Education Services' (DRES) evaluation centers. There are three DRES evaluation centers in Iowa with the main facilities located in Des Moines. The agency has facilities at Oakdale and Fort Dodge. The Concentrated Employment Program (CEP) within the city of Des Moines also has an evaluation program that uses work sampling as a tool.

Iowa has vocational evaluation and exploration facilities at three Area Community Colleges. Indian Hills at Ottumwa, Kirkwood at Cedar Rapids and Des Moines Area Community College at Ankeny. All have facilities and equipment to provide vocational evaluations. Hawkeye at Waterloo, Iowa Lakes at Emmetsburg and others are developing evaluation techniques.

SUMMARY

The use of samples of real work can tie together the questions of capability, vocational development and the responsiveness to meaningful

reality. Work sampling provides knowledge about the applicant's interest, abilities, attitudes, personality and motivation. Also other important work readiness indicators are provided which permit the teachers and counselor to cope with questions raised by employers concerning skill potential and job stability of an applicant having no work history.

Work sampling is not to be considered a panacea to solve all the EMR's or their teachers' problems. However, it is a useful tool, to be added to others you have already developed, for a better look at the individual and to provide more assistance to the students.

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Sample #1

EXPLORATION - EVALUATION RESULTS

Student _____ Evaluator _____

Dates of Evaluation, From _____ To _____ Hours Attended _____

Work Sample	Rating per Attempt 1 2 3 4 5	Work Sample	Rating per Attempt 1 2 3 4 5	Work Sample	Rating per Attempt 1 2 3 4 5

RATING KEY

Sample #2

WORKER CHARACTERISTICS

Strengths:

Weaknesses:

Trainability and at what level:

General employability:

Effective reinforcers or key factors in bringing about change:

Attitude, dependability and responsibility toward work:

Maturity:

Acceptance of supervision (praise/criticism):

Interest and how well student meets requirement of job of interest:

Retention of instructions:

Recommendations and comments (specify jobs where success is likely):

REASON FOR WORK SAMPLING AT KENNEDY HIGH SCHOOL

Arnold Erickson
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Cedar Rapids, Iowa

The Special Education students at Kennedy High School are no doubt going to be limited in their choice of future occupations. If we think only in terms of educating them academically, then we are doing them a disservice.

Their academic prowess is limited, as proven by psychological testing, although by concentrating on an academic curriculum alone, we may be able to raise their academic achievement slightly. But will this amount be enough to prepare them for a life of self-sufficiency, which I believe should be our ultimate goal. I think not.

Consequently a program was instituted at Kennedy High School that concentrated on work sampling set in a more realistic environment, away from school. The following is a description of our program.

Our Work Study Lab to which the students are bussed each day, is located in downtown Cedar Rapids, Iowa. At the Lab, work sampling is of three types: isolated-trait work sampling, simulated work sampling, and actual work sampling. The latter is what we aspire to as the most desirable for adjusting our students to the world of work. Every effort is made to make this area of sampling realistic.

Students must fill out application forms. Time cards are used on the job. There are foreman, weekly individual evaluations and job proficiency cards on each student. If a student is "fired" because of attitudes which would be unacceptable to actual employers, a vocational

rehabilitation counselor is available to help him. After the necessary counseling, the student can be "rehired."

The areas of actual work sampling are food services, (we have our restaurant service, with invited guests), assembly line for producing elementary school materials, office experiences, (collating, filing, mail stuffing), custodial care, and plant maintenance.

The isolated work sampling is done at the beginning of the school year to assess specific traits and talents.

Simulated work samples are used when there is not the necessary "actual jobs" available.

Our students will seek and hopefully gain part-time employment in the competitive market during their junior and senior years of high school. We feel that work sampling at the Work Study Lab will improve the students' job performance and work behavior so that their future in the world of work will be a positive experience.

KENNEDY WORK STUDY LAB

I. Supervisory Staff
   A. Lab Manager
   B. Office Department Manager
   C. Production Department Manager
   D. Food Services Department Manager

II. Department Responsibilities
   A. Lab Manager
      1. Overall Supervision of Lab
      2. Program Planning
      3. Approval of Purchases, Requisitions and Trips
      4. School and Community Contacts (Products Delivery)
   B. Office Department Manager
      1. Receive, Date and File Orders
      2. Confirm Receipt of Orders with School and Set Tentative Date for Completion
      3. Arrange Completion of Order with Production
      4. Packing of Orders
      5. Billing for Material Used in Orders
      6. Requisition Raw Materials for Production, Food Service, and Crafts
      7. Inventory Equipment of the Lab
      8. Supervise Tool Check-Out
   C. Personnel Department Manager
      1. Time Cards and Payroll (Awards)
      2. Set Production Schedule
      3. Personnel Evaluation
         a. Personal Appearance
         b. Attendance
         c. Grievances
         d. Interpersonal Relations
      4. Health and Safety
         a. First Aid
         b. Inspection: Sanitation
         c. Safety Glasses; Hair Nets, etc.
   D. Food Services Department Manager
      1. Cafe Operation
         a. Short Orders
         b. Training of Waitresses, Bus Boys, Tray Carriers, Servers, Dishwashers, Cashiers
      2. Coin Machines
      3. Break Time
   E. Production Department Manager
      1. Plywood Products
      2. Cardboard Products
      3. Bulletin Boards
      4. Crafts and Hobbies
      5. Repair and Construction
      6. Custodial Services
         a. Toilets
         b. Floors
         c. Windows
         d. Trash Pick-Up
      7. Delivery Services
         a. Pick-Up of Raw Material
         b. Deliver Finished Products

(Workers Supplied to Lab Manager for Delivery Services)

EVALUATION OF WORK SAMPLING

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Joint County School System
Cedar Rapids, Iowa

I recall attending a work study workshop where discussion, in one session, centered on the evaluation techniques and instruments used for off-campus work experiences. Someone suggested that we ask ourselves, "Why do we want an evaluation?" At first hearing, this seemed to be an unnecessary question, However, taking time to discuss and answer the question gave us a new sense of direction in completing our task.

We must now ask, "Why do we want to evaluate the work samples employed at the Lab?" and "What are the components of an evaluation?"

I would suggest that the reason the work study lab was initiated was to provide meaningful information about the students who were being exposed to work samples in various job cluster areas. This information would be fed back to the school setting so that an adequate program of work adjustment and classroom support could be incorporated into a vocational plan for each student. No longer can we, or should we, rely on the "trial and error" method of assessment which meant providing a student several work experiences that may or may not have been successful. There is a definite need to provide vocational assessment opportunities much earlier in the school life of a student.

Much of the information in print regarding vocational evaluation and work evaluation deals with youth and adults in post-school settings. I therefore believe that one of the paramount needs is to evaluate the work study lab model as a viable means of predicting areas of vocational strengths and weaknesses for each participating student.

Another need is to determine if a valid work evaluation can be achieved using instructional and supervisory personnel that are not formally trained to conduct such evaluation.

JOB SAMPLES

Gene Jahncke
Coordinator, Special Classes
Cedar Rapids Community Schools

Job samples take at least two forms (simulated and actual) and may occur inside or outside the school setting. The sampling, desirably, takes place in a work situation. Sometimes the term "isolated trait" is used. For the rest of this paper "isolated trait" is used instead of "simulated." Examples of isolated trait job samples are: putting nuts on a bolt, typing tests, reading a parcel post zone map, or an accuracy test on an adding machine.

Actual job samples are collected from actual work experiences. They might include bolting together a fuse box, typing the attendance report, mailing material from the IMC or adding retail sales receipts.

A possible third category job sample is the result of observation or testing in the job situation. Sometimes this is called a situational job sample. Goodwill Industries of Milwaukee, Wisconsin, has a guide for evaluating clients in the work situation. Major categories evaluated are: personal appearance, emotional stability and control, self-confidence, general disposition, ability to express oneself, leadership qualities, group relationships, ability to work with others, cooperativeness, staff relationship, acceptance of supervisor, ability to understand instructions, ability to carry through work assignments, physical coordination, learning speed, attitude toward work, attendance and punctuality, rate of manual production, work quality, initiative and resourcefulness.

There are, then, three types of job samples that aid in predicting vocational success for our students. They are: situational job samples,

isolated trait samples, and actual job samples. Although schools have frequently used situational job samples and isolated trait sampling in the past, there are interesting possibilities for actual job samples in the school setting.

The Work Study program of Kennedy High in Cedar Rapids has a laboratory located in a downtown urban renewal building. Much actual work sampling is done there. There is a production shop area that does work for Cedar Rapids schools such as: making new pieces for inlay puzzles, bulletin boards for teachers and puppet stages. This necessitates much actual office work. Raw materials must be ordered, overhead expenses figured, orders alphabetized and filled, production schedules decided, telephone and mail communication carried on, products wrapped and packaged, bills mailed, etc.

During the workshop we wish to share with you some of our experiences with job samples and hear experiences you have had. Together we should be able to compile quite a list of situational, isolated trait, and actual job sample possibilities for our students.

THE READING-FREE VOCATIONAL INTEREST INVENTORY: MEASUREMENT OF JOB PREFERENCE IN THE EMR

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Columbus, Ohio

The central purpose of the study was to develop an objective technique to obtain the extent of a retarded individual's preference for particular work areas while enrolled in a state residential training program or a public day school work study curriculum.

The problem of developing measures of interests appropriate to the unskilled and semiskilled levels has been difficult to achieve with conventional interest inventories. These instruments were originally developed for use with business and professional men or with college and high school students aiming at the middle through the upper range of the occupational hierarchy (Strong, 1943). Long (1952) has pointed out that such inventories as the Kuder Preference Record and the Strong Vocational Interest Blank characteristically focus upon specific jobs and occupational areas with which the lower ability job applicant is not familiar. To meet the demands of applicants in the lower occupational job range, interest inventories developed by Clarke (1948, 1949, 1955), and Long (1952) were standardized on appropriate groups of non-professional workers. However, while these instruments tap the unskilled and semiskilled job range they require a level of reading and comprehension of statements beyond that achieved by most mentally retarded youth.

To overcome some of the limitations of the reading comprehension variable, test developers have devised picture tests having occupational

significance. Such instruments are the Vocational Apperception Test (Ammons, Butler and Herzig, 1949), the Picture Interest Inventory (Weingarten, 1958), and the Geist Picture Interest Inventory (Geist, 1959, 1964). While these instruments circumvent the reading requirements, they do, nevertheless, include job areas far beyond the retardeds' vocational reach.

To make pictorial tests on interest measurement applicable to retarded persons, test developers have devised instruments whose occupational range is realistic for this population. The Picture Inventory of Semi-Skilled Jobs (Urich, 1960), the Vocational Picture Interest Inventory (Becker, 1967, Becker & Ferguson, 1969), and the Vocational Interest and Sophistication Assessment (Parnicky, Kahn, and Burdett, 1968) are more recent advances in attempting to measure this aspect of the retarded person's personality.

Procedure

Under a grant from the U.S. Office of Education beginning in the summer of 1968, phase one of a study was implemented to determine those areas of commerce and industry in which the educable mentally retarded (EMR) had demonstrated proficiency and productivity in the performance of their job. Review of the literature uncovered Guide To Jobs For The Mentally Retarded, an extensive study of the wide range of job titles held by EMR subjects from an analysis of various source data conducted by the American Institutes for Research (1964). A major section of the Guide consisted of 134 specific job activities requirements profiles itemizing the specific tasks required of the job incumbent. In addition, the 134 profiles were grouped according to

commonality of jobs or job types into 21 job families. This master profile is a listing of observable work tasks common to most or all job titles in a job group. The Guide served as the source for developing the Reading-Free Vocational Interest Inventory.

Item Selection. Working directly from the master profiles, job tasks were selected in a manner that each task was counted only once. This procedure was necessary since various job activities (tasks) entered into other master profiles in varying degrees of occupational input. On the basis of logical validity, each job activity was then assigned to a group of job activities with which it had a logical commonality. Processing each job activity in this manner resulted in eleven different categories for males and eight for females. Each of the male categories (clusters) and each of the female categories were then inspected for task content. On the basis of the type and kind of task being performed, each cluster was labelled with a descriptive term that became the name for that interest scale. The male scales were listed as: 1. Automotive (Auto), 2. Building-Trades (B-Tr), 3. Clerical (Cl), 4. Animal Care (An Cr), 5. Food Service (F S), 6. Patient Care (P Cr), 7. Horticulture (Hort), 8. Janitorial (Jan), 9. Personal Service (P Sv), 10. Laundray Service (Ly), 11. Materials Handling (M Hg). For females the scales and symbols were listed as: 1. Laundry (Ly), 2. Light Industrial (Lt-Ind), 3. Clerical (Cl), 4. Personal Service (P Sv), 5. Food Service (F S), 6. Patient Care (P Cr), 7. Horticulture (Hort), 8. Housekeeping (Hsk).

Item Illustrations. The list of job activities (items) secured from the Guide and assigned to criterion categories to form interest clusters served as the basis for drawings. Each category or interest scale contained an equal number of items, 15. The number of items was determined

by summing the number of tasks by category with 15 satisfying all clusters.

The job tasks given in the Guide were terse statements of the activity required of the job incumbents in performing their duties. Added information was required in order that activities could be illustrated by the artist. Detailed information on all items was prepared indicating the occupational tools or equipment, environment, and lay-out of the illustration. Specifications for all artwork called for clean, bold, line drawings and free of fine detail and figure-ground problems of perception. In addition, the dominant figure was drawn to enable the examinee to project himself into the depicted activity. The preliminary list consisted of 165 male illustrations (11 categories x 15 items), and 120 female illustrations (8 categories x 15 items). All drawings were then submitted to a committee for review and recommendations.

The Test Format. Following the preparation of all test items, a method of collating and presenting pictorial items in booklet format was studied. The final design was one suggested by Cronbach (1946): a forced choice between alternative responses for increased item validity. The usual design depicts three illustrations (triad) only one of which the examinee can select though all three may seem equally attractive or unattractive to him.

According to a pre-arranged schedule, items were presented in groups of threes with three triads per page. Each triad was separated from all others on a page by heavy dark dividing lines. The total number of triads created under this plan was 55 for males, and 40 for females. Directions for administering the test and the purpose of the

inventory were indicated on a cover page. The cover page and pages of the pictorially presented test triads were bound into an 8½" by 10" booklet and called Experimental Booklet A-1 of the Reading-Free Vocational Interest Inventory (R-FVII). Separate booklets were prepared by sex.

Item Analysis. The pictorial items were originally formulated from job task descriptions given in the Guide and tentatively grouped into eleven male and eight female interest categories on the basis of logical validity. For each of the male and female categories, scoring keys were established with each item keyed to that scale for which it had logical validity. To identify items from the various interest clusters, the key number was located in the lower right section of the item as part of the illustration.

The objective of item analysis was to determine the goodness or validity of individual items through high discrimination indices, and item clusters with high internal consistencies. A series of item analysis studies were conducted on combined male samples and combined female samples of institutionalized and public day school EMR youth. Characteristics of the standardization sample are presented in Table 1.

The final item analysis study took the form of Experimental Booklet D, having satisfied such criteria as content reliability or the internal consistency of the scales, and item validity or the discriminating power of individual items. In addition, the item study revealed that various items were valid for more than one occupational category, i.e., in addition to discriminating between subjects with high and low interest in the criterion category, the same item discriminated positively between subjects with high and low interest in a second category. Thus, 24 male items and 21 female items were keyed on two different interest scales.

Collecting Normative Data. A final product evolved in the format of the Experimental Booklet D. In order that examinees' choices for a wide range of items having occupational significance be interpreted, a standard-of-reference was required against which subjects' performances could be compared and measured. The initial task was to obtain a reference group whose characteristics and geographical residence would be representative of EMR children who would be using the instrument. The strategy was to divide the country into eight geographical divisions insuring that all sections of the country would be included in the collection of normative data. These regions are: Mideast, Southeast, Southwest, Farwest, Rocky Mountains, Plains, Great Lakes, and New England.

To insure that sampling would be representative of each region, the plan was to include the same proportions in the standardization sample with regional distribution of actual enrollment. To determine the actual enrollment of EMR youth in public secondary day schools, a questionnaire was prepared and mailed to all chief school officers in the 50 states and the District of Columbia. Information reported by chief school officers was treated to yield an estimate of the eight regional and U.S. population census on EMR males and females attending special classes in public secondary day schools for the school year 1969-70. Using information from state directories of special education, a random sampling of school districts by region was conducted for the continental U.S. including the Hawaiian Islands. State residential facilities were randomly sampled so as to include all geographical sections of the country according to regional divisions.

The Norms Tables. The purpose of norms tables serves as a reference standard for translating obtained raw scores to values on some other scale for interpretation. Two sets of data for each sex were collected

for purposes of developing norms: public day schools and state residential schools. In addition to the collection and development of separate norms for public schools and state institutions, a composite norm was prepared combining all males from both types of instructional settings; a composite norm for all females was also prepared. This resulted in six norms for the following agency types by sex and size of the norming sample: Public Day School Males (N=2401); Institutionalized Males (N=1006); Composite Males (N=3407); Public Day School Females (N=1996); Institutionalized Females (N=1010; and Composite Females (N=3006).

In preparing the norms tables, raw scores were converted to percentile ranks. Though the percentile scale is easily understood and interpreted by practitioners, it does not lend itself readily to such operations as addition, subtraction, and the like. To make subjects' test scores more broadly interpretable, percentile ranks were translated into their equivalent normalized standard score (T-Score). Including the normalized standard score scale allows practitioners to compare scores made on different interest tests and to calculate measures of central tendency or other data for quantification, study, and analysis.

Reliability of the Scores

In evaluating the reliability of any instrument it is recognized that different reliability formula treat the data differently. Two dimensions of test reliability were considered in the present study: content reliability and temporal reliability.

Content Reliability. Provided the test is not a speed test, evidence of content reliability may be obtained from a single administration of the instrument. One procedure of doing this is through an internal consistency

measure such as the Kuder-Richardson 20 formula (K-R 20). Although any two items may be quite independent of each other, all items on the test should be centered on the same content area to accentuate what they have in common. It is through the use of the K-R 20 formula that the content consistency (reliability) of each interest scale is expressively measured. Responses of subsamples of males in grades 9-12 in public day schools, ungraded institutions, and composites in the standardization sample were analyzed. The K-R 20 reliabilities for each scale by type of agency are presented in Table 2. Responses of subsamples of females in grades 9-12 in public day schools, ungraded institutions, and composites in the standardization sample are reported in Table 3.

Content reliabilities (K-R 20) for the subsamples of males ranged from .68 to .92 in both the public day schools and state institutions with a median of .82. The fact that the Automotive K-R 20 is .92 for agency types, indicates the high degree of relationship among items in this cluster to measure automotive characteristics as defined and depicted in the test. The Materials Handling K-R 20 of .68 demonstrates less of this factor while one explanation may be that these items tend to be distributed into other interest clusters.

Content reliabilities for the subsample of females ranged from .69 to .96 in public day schools, .67 to .94 in state institutions, and .70 to .96 in composite groups. The median for each agency type and composite was .82, .79, and .81, respectively. Again, the fact that the Patient Care K-R 20 is .94 and .96 in agency types, indicates the high degree of relationship among items in this cluster to measure patient care characteristics as defined and depicted in the test. Less of this factor is demonstrated in the Personal Service cluster for institutionalized girls (.67). One explanation may be that these items enter into other

interest clusters in varying degrees of input assuming that other conditions such as item discrimination has been previously met.

Inspection of K-R 20 reliabilities for matched interest clusters on male agency types (Table 2) shows modest to high similarity of obtained values. Inspection of K-R 20 reliabilities for matched interest clusters on female agency types are less consistent than males (Table 3). Though there is a general tendency for six of the eight matched scales to have similar values, two scales show increased diversion. The Laundry Service scale and the Clerical scale when matched with the same scale on the second subsample demonstrate this disparity.

Explanation for the disparity between K-R 20 reliabilities on the two subsamples may be found in job tasks more common to one group than another. For example, laundry service operations in a state residential facility is a major training and work area for many institutionalized girls. Strong familiarity and association with job tasks in this category versus less experience for the sampled public school girls, may be accounting for this difference in content reliabilities of the two subsamples. Again, differences between obtained internal consistencies for the matched Clerical scale, may be due to the degree of activity and familiarity that public school girls experience in relation to their institutionalized peers.

Temporal Reliability. This is a retest correlation obtained by administering the same test on two occasions to the same subjects. It is a coefficient of temporal stability because it tells how stable this particular performance is over a specified length of time. A test can not give valid results if it gives different results at different times. For the present study, subjects were tested and then retested (test-retest) and reliability coefficients computed by the Pearson product-moment correlation coefficient.

Subsamples from the male standardization study were administered the inventory and retested after a two week interval. Table 4 presents reliability coefficients for each interest scale by agency type and composites. Reliability coefficients on subsamples of females retested after a two week period are reported by interest scale and agency type in Table 5.

The retest coefficients for subsamples of males ranged from .73 to .91 in public day schools, .74 to .94 in state institutions, and .75 to .92 for composite males. Correlations were mainly in the 70s and 80s. Correlations for the institutionalized males were generally higher than those in public day schools. Eight of the eleven coefficients showed at least modest differences. Inspection of Table 1 shows the institutionalized males, on the average, to be at least 2 years, 5 months (2-5) older than males in public schools, indicating greater reliability of the scores for the more mature group withstanding slightly lower IQs.

Retest coefficients for subsamples of females ranged from .68 to .87 in public day schools, .65 to .89 in state insitutions, and .72 to .88 for composite females. Correlations were mainly in the 70s and 80s. Of the eight retest coefficients, institutionalized females were generally higher on five correlations, indicating greater reliability of the scores for the more mature group (an average of 2-8 older) withstanding slightly lower IQs.

Validity of the Scales

The validity of the scales is the extent to which the test does measure what it claims to measure. Three dimensions of test validity

were considered in the present study: content validity, concurrent validity, and construct validity.

Content Validity. Content validity was built into the test when a complete study and analysis was made of the Guide to determine the wide range of job tasks appropriate for mentally retarded individuals. Estimates of the importance of each job task to the successful execution of the job was critically reviewed by study teams. The result was a final list of job tasks taken from a universe of items known to cover the job adequately and proportionately. Moreover, statistical item validity was established through extensive item analysis studies for retention of items with discrimination powers.

Concurrent Validity. This is one type of empirical validity when both test scores and criterion values are obtained at about the same time. The criterion or standard against which the test was validated consisted of separate samples of males and females from residential institutions and public day schools in eleven male and eight female occupational groups. Each occupational group represented an interest scale. Subjects were selected according to occupational information reported from test sites. The information described the job tasks of incumbent workers or assigned them to specific job clusters or families indicated on the interest scales. Means of raw scores on each interest scale in each occupational group were converted to percentile ranks using the appropriate percentile norm. Percentile ranks were then translated into their equivalent normalized standard scores and profiles plotted for each occupational group according to sex and agency type of incumbent workers. Eleven graphs (Figures 2-12) present typical profiles for eleven male occupational groups in institutional and public day school work programs. Figures 13-20 present typical profiles

for eight female occupational groups by agency type. The predominant interest area of each of the incumbent groups is indicated. The sample size of job incumbents ranged from a low of 35 to a high of 55 subjects on assigned scales.

Inspection of Figures 2-20 indicates that the expected T-Scores for each occupational group were larger than for the other interest scales. That is, occupational groups scored higher on their "own" scale than on scales outside of the incumbent work area. In most cases the respective interest scale for incumbent workers in both agency types are readily identified on the physical profiles. This situation may result from the characteristics of the workers themselves, i.e., those subjects whose scores were used in plotting respective interest profiles were satisfied and motivated with their current job activity.

Construct Validity. To the extent that a variable is abstract rather than concrete, we speak of it as being a construct. Construct validity is evaluated by investigating what qualities a test measures, that is, by determining the degree to which certain explanatory concepts or constructs account for performance on the test. Four sources of data types were used to infer construct validity of the test: content validity, internal consistency, concurrent validity, and intercorrelations of the scales.

A variety of items listed in the Guide were logically categorized by type and kind of activity to form item domains. These domains represented logical clusters of items with similar observable characteristics. To test the goodness of individual items, a series of item analysis studies were performed. The final list of item domains

were then tested for internal consistency (content reliability). The analysis showed that (1) the cross validation study obtained similar content reliabilities in repeated data collection, and (2) the identification of similar content reliabilities with independent samples (Tables 2 and 3). The emergence of similar content reliabilities between independent samples on replicated data does provide some evidence that item domains are measuring some attribute or concept. To the extent that items within an interest scale show this consistency in independent samples, does suggest that some construct may be employed to account for the data.

Though consistency of performance is necessary, it is not a sufficient condition for construct validity. The most direct and empirical way for investigating what a test measures is to correlate it with other tests or a criterion that assumes to be measuring the same thing as the research instrument.

In conducting the current validity studies, incumbent occupational groups were represented on the interest scales. The result of the occupational validation study established empirical relationship between test scores on the inventory with respective occupational groups in the field through profile analysis. The emergence of this positive relationship satisfied the descriptive name assigned to each of the item domains or interest scales.

To further investigate the inter-relations between the interest scales, all scales were intercorrelated for each agency type and for sex. The desired correlations are negative to low positive values, this would suggest that interest scales were formulated from independent constructs. The intercorrelations of the scales for the composite sample of all males in the standardization study are reported in Table 6. Intercorrelations of the scales for composite females are reported in Table 7.

Inspection of Table 7 points up a single modest relationship (.35) between Patient Care and Personal Service scales. The majority of intercorrelations are within the range of negative to low positive values. In general, inspection of the values obtained within each of the male and female intercorrelation matrices show item domains to be formulated from independent constructs. Only two values in the male matrix show correlations whose magnitude suggests a single or at least a composite-type construct.

Discussion and Summary

The purpose of the study was to devise a non-reading technique to measure vocational preference of EMR youth in different agency types. The scope of the study included males and females as independent samples from two sources: (a) those enrolled in grades 9-12 in public day schools, and (b) institutionalized youth in ungraded programs. Subjects were selected from each of eight regional sections of the U.S. including the Hawaiian Islands under a strategy of representative sampling.

In developing the instrument, certain basic attributes were considered: validity and reliability of the individual items and for the total test. The validation of items and total test were demonstrated through precise statistical analysis and by occupational profiles of actual incumbent retarded workers. The reliability of items and total test were demonstrated through measures of internal consistency and test-retest correlations after a two-week interval. Too, an explanation of the interest scales of psychological entities was inferred through steps in construct validation. It may be concluded from a review of all the data that the required measurement on the validity and reliability of the present study has been satisfactorily met.

To date, preliminary validity studies appear to be holding up. There still remains the need to establish predictive validity of the scales. Research should use present test scores with adjunct information for job placement of clients and then follow up by correlating initial inventoried scores with job entry. Such information would determine the credibility of the scales and the degree of confidence practitioners could attach to their recommendations made to clients.

For school districts with adolescent and young adult populations of EMR subjects where no special education program exists or is in the developmental stages, the inventory may be used in (a) curriculum planning, (b) in expanding educational objectives relating to occupational preparation and adjustment, and (c) relating the vocational practice to trainee needs as determined from inventoried and objective measurement.

Further use of the inventory and try-out with populations as the trainable mentally retarded, the disadvantaged, and the illiterate, would determine the feasibility for this type of design with other populations.

TABLE 1

Characteristics of the Standardization Sample

by Sex and by Type of Facility

MALES	Mean IQ	Mean CA	IQ Range	CA Range
Public Day Schools (Gr. 9-12)	69.4	17-5	48-85	15-5 to 22
State Institutions (Ungraded)	62.4	19-10	47-84	16-6 to 25

FEMALES	Mean IQ	Mean CA	IQ Range	CA Range
Public Day Schools (Gr. 9-12)	67.9	17-4	48-85	15-4 to 21
State Institutions (Ungraded)	62.3	20-0	47-84	16-7 to 25

TABLE 2

Internal Consistency of the Interest Scales for a Subsample of Males in the Standardization Study

Interest Scale	No. of Items	K-R 20 Reliability: Public Day Schools (N=143)	Institutions (N=50)	Composites (N=193)
1. Automotive	15	.92	.92	.93
2. Building Trades	20	.82	.81	.83
3. Clerical	16	.77	.78	.77
4. Animal Care	15	.90	.89	.90
5. Food Service	18	.82	.85	.82
6. Patient Care	15	.91	.91	.92
7. Hortioulture	17	.85	.87	.86
8. Janitorial	19	.76	.82	.80
9. Personal Service	18	.79	.78	.79
10. Laundry Service	17	.75	.71	.74
11. Materials Handling	19	.68	.68	.68

TABLE 3

Internal Consistency of the Interest Scales for a Subsample of Females in the Standardization Study

Interest Scale	No. of Items	K-R 20 Reliability: Public Day Schools (N=90)	Institutions (N=45)	Composites (N=135)
1. Laundry Service	19	.69	.86	.78
2. Light Industrial	19	.79	.75	.77
3. Clerical	16	.86	.76	.83
4. Personal Service	21	.72	.67	.70
5. Food Service	18	.78	.72	.77
6. Patient Care	15	.96	.94	.96
7. Hortioulture	15	.94	.92	.94
8. Housekeeping	18	.84	.81	.83

TABLE 4

Test-Retest Correlations of the Interest Scales for a Subsample of Males: Public Day Schools Grades 9-12, and Ungraded Institutions

Interest Scale	Test-Retest Reliability* Public Day Schools (N=143)	Institutions (N=50)	Composites (N=193)
1. Automotive	.91	.94	.92
2. Building Trades	.86	.89	.88
3. Clerical	.79	.80	.79
4. Animal Care	.89	.94	.91
5. Food Service	.83	.88	.85
6. Patient Care	.87	.89	.88
7. Horticulture	.84	.89	.86
8. Janitorial	.86	.85	.86
9. Personal Service	.88	.83	.87
10. Laundry Service	.75	.74	.76
11. Materials Handling	.73	.82	.75

TABLE 5

Test-Retest Correlations of the Interest Scales for a Subsample of Females: Public Day Schools Grades 9-12, and Ungraded Institutions

Interest Scale	Test-Retest Reliability* Public Day Schools (N=90)	Institutions (N=45)	Composites (N=135)
1. Laundry Service	.72	.89	.81
2. Light Industrial	.73	.87	.77
3. Clerical	.68	.85	.72
4. Personal Service	.80	.78	.79
5. Food Service	.78	.65	.75
6. Patient Care	.85	.88	.86
7. Horticulture	.87	.89	.88
8. Housekeeping	.86	.85	.86

*Interval of 2 weeks

TABLE 6

Intercorrelations of the Interest Scales: Male Composite Groups of Public Day Schools Grades 9-12 and Ungraded Institutions (N=3407)

Interest Scale	2 B-Tr	3 Cl	4 An Cr	5 F S	6 P Cr	7 Hort	8 Jan	9 P Sv	10 Ly	11 M Hg
1. Auto	.42	-.13	-.16	.01	-.25	.06	-.05	-.49	-.55	-.01
2. B-Tr		-.16	.00	-.29	-.37	.26	.04	-.52	-.43	.01
3. Cl			-.36	.04	.23	-.51	-.41	.25	.21	-.06
4. An Cr				-.48	-.14	.59	.00	-.19	-.21	-.34
5. F S					-.03	-.49	-.08	.27	.13	.27
6. P Cr						-.50	-.39	.30	.17	-.33
7. Hort							.28	-.44	-.29	-.09
8. Jan								-.32	.06	.13
9. P Sv									.23	-.02
10. Ly										.01

TABLE 7

Intercorrelations of the Interest Scales: Female Composite Groups of Public Day Schools Grades 9-12 and Ungraded Institutions (N=3006)

Interest Scale	2 Lt-Ind	3 Cl	4 P Sv	5 F S	6 P Cr	7 Hort	8 Hsk
1. Ly	.07	-.11	-.40	.02	-.29	-.16	.22
2. Lt-Ind		.13	-.03	-.05	-.59	.23	-.15
3. Cl			.12	-.34	-.04	-.21	-.52
4. P Sv				-.01	.35	-.38	-.55
5. F S					-.21	-.02	.02
6. P Cr						-.58	-.26
7. Hort							.24

FIGURES 2-12

Typical profiles for eleven male occupational groups attending public schools and residential facilities

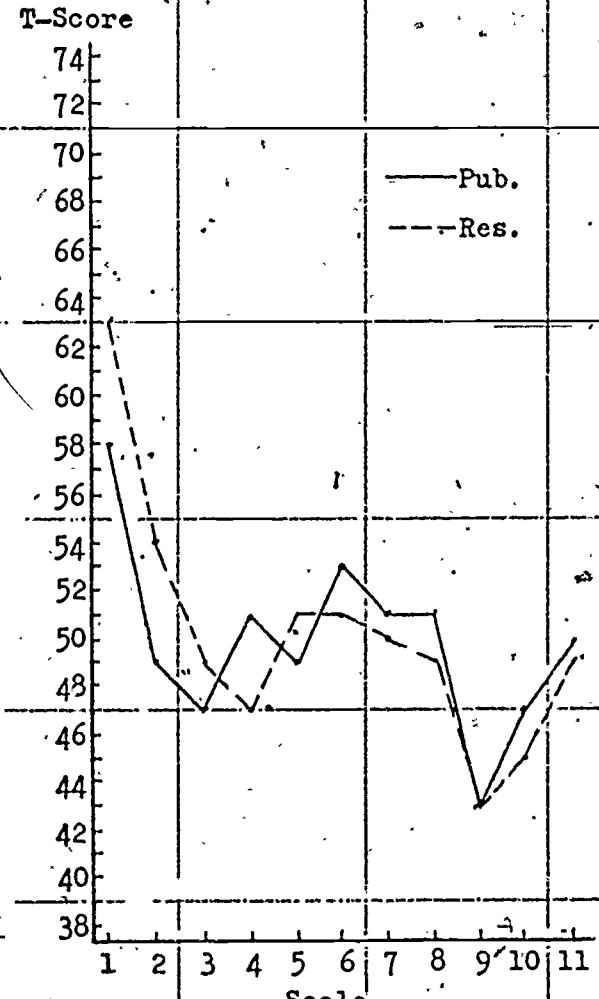

FIGURE 2

Automotive Workers (Auto)

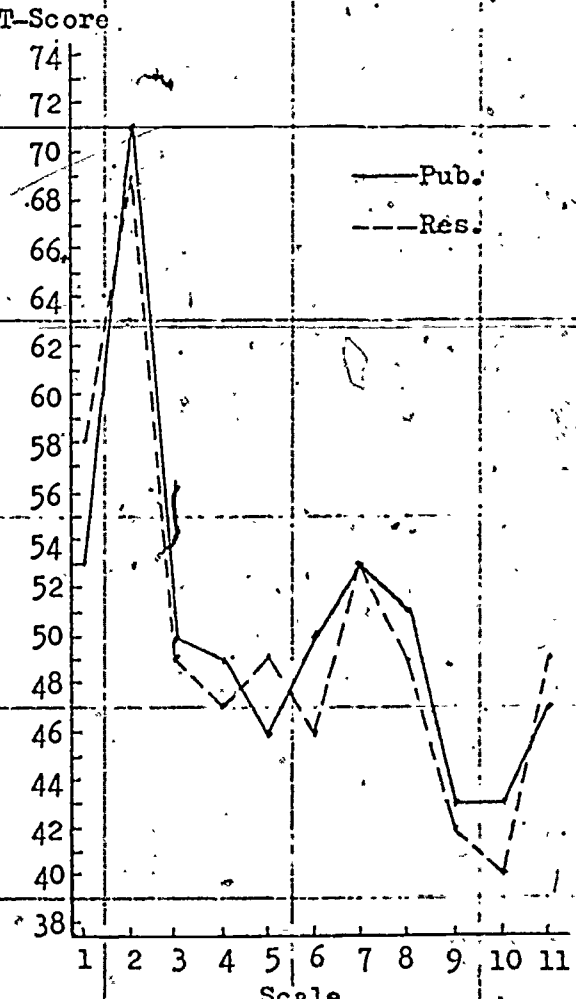

FIGURE 3

Building Trades Workers (B-Tr)

Key

1. Auto	5. F S	9. P Sv
2. B-Tr	6. P Cr	10. Ly,
3. Cl	7. Hort	11. M Hg
4. An Cr	8. Jan	

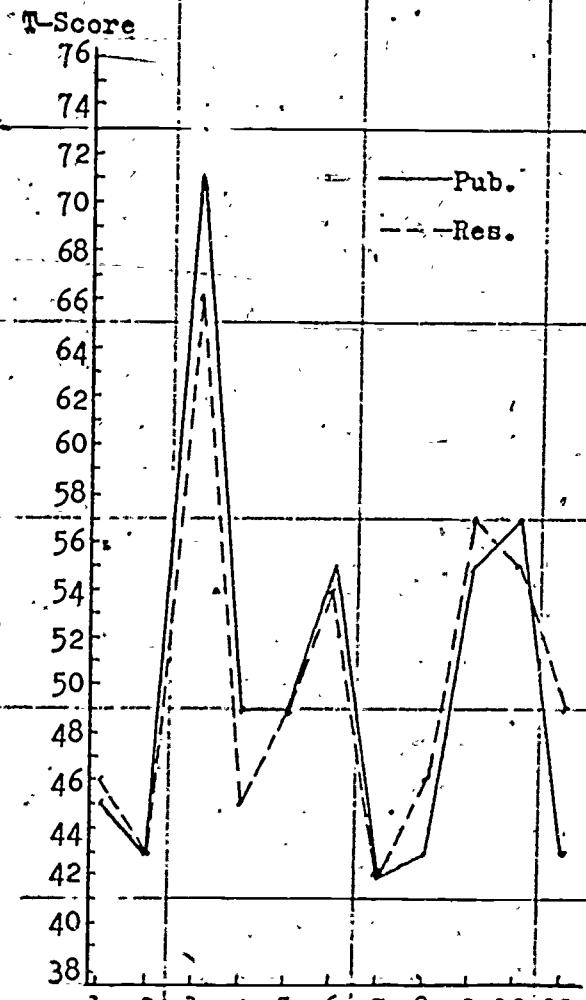

FIGURE 4

Clerical Workers (Cl)

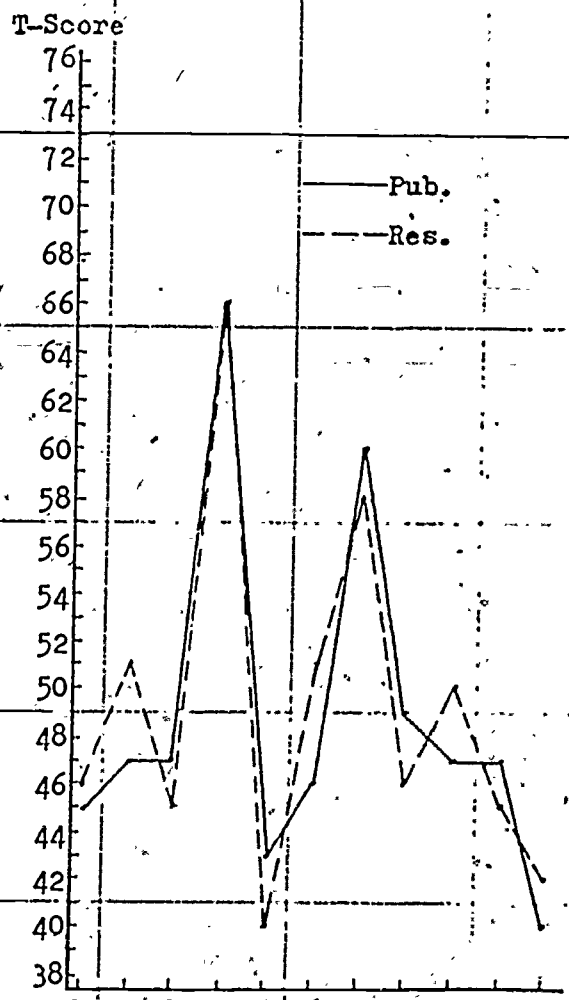

FIGURE 5

Animal Care Workers (An Cr)

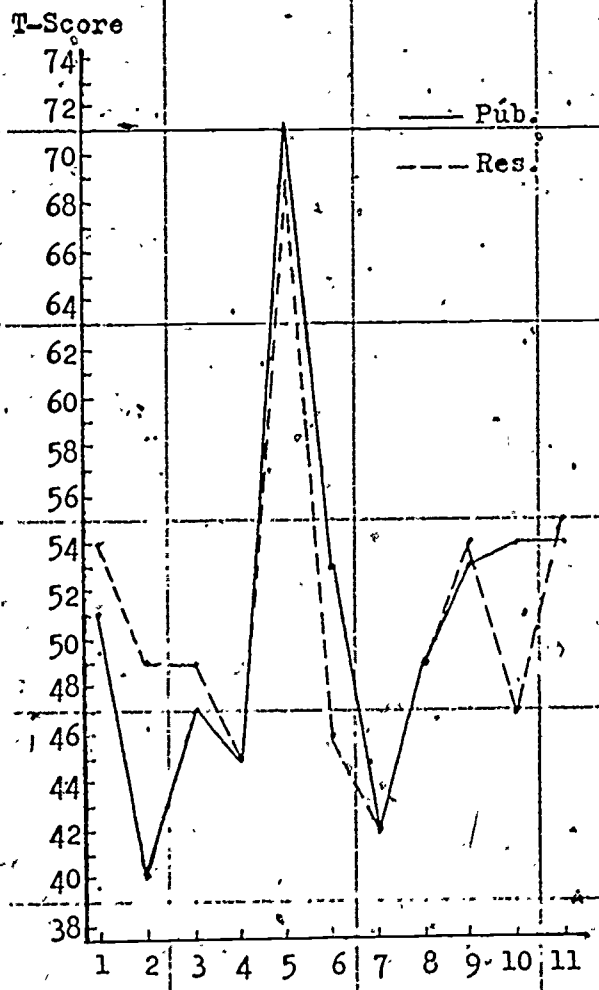

FIGURE 6

Food Service Workers (F.S)

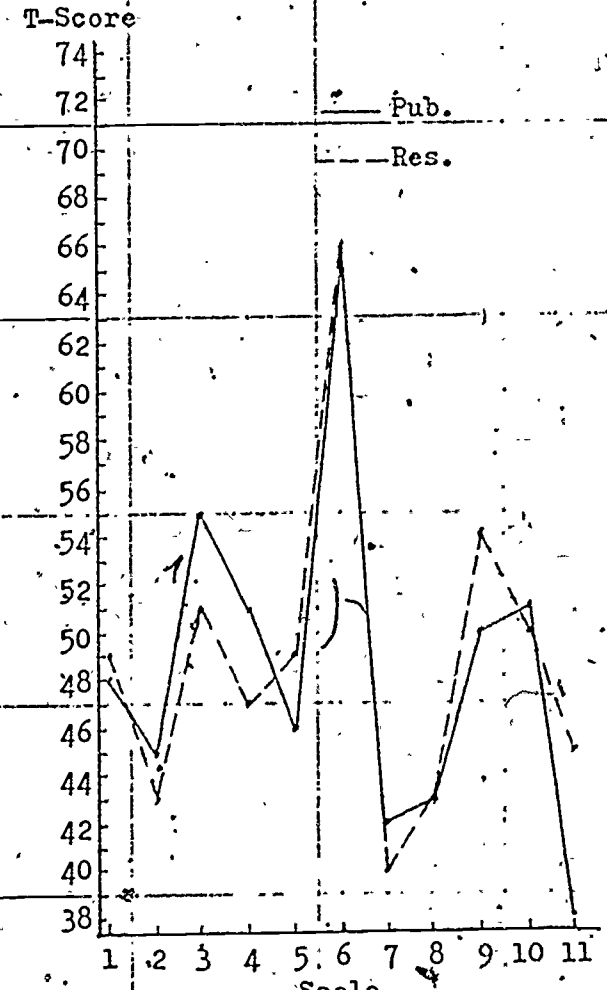

FIGURE 7

Patient Care Workers (P Cr)

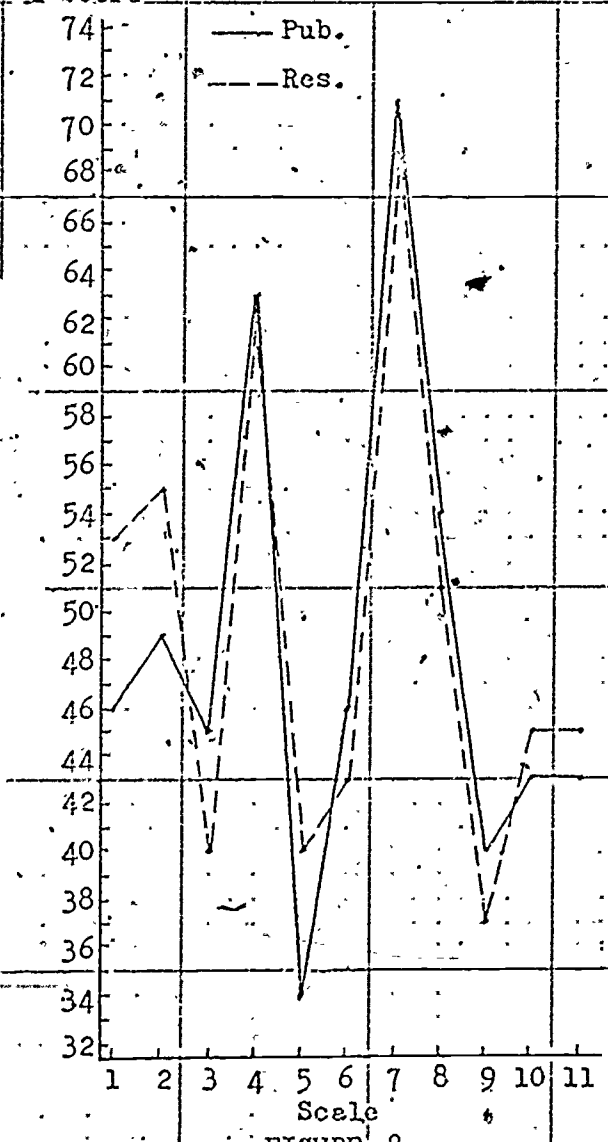

FIGURE 8

Horticulture Workers (Hort)

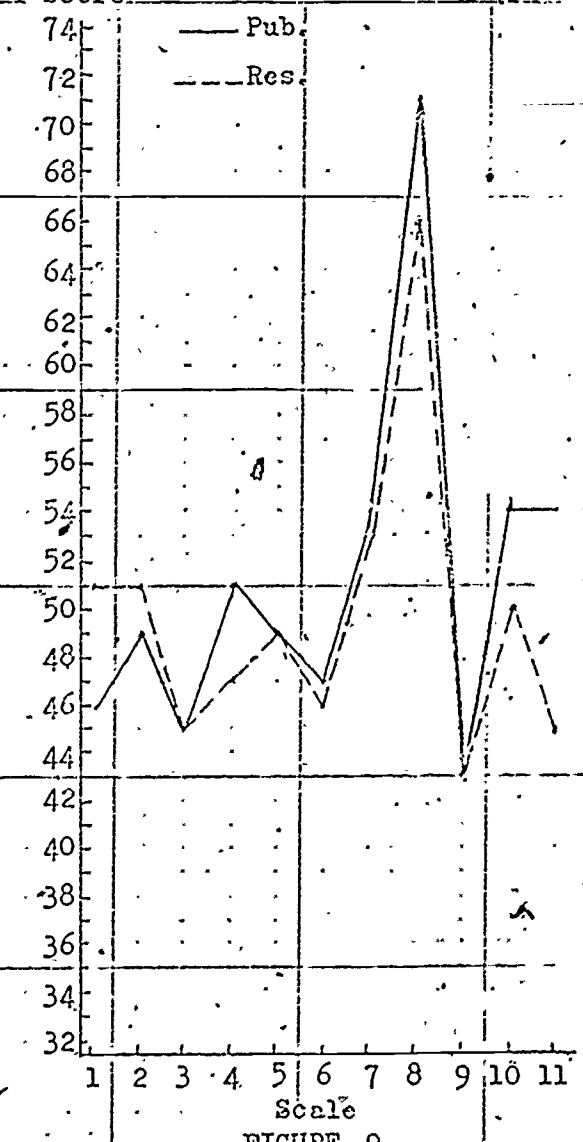

FIGURE 9

Janitorial Workers (Jan)

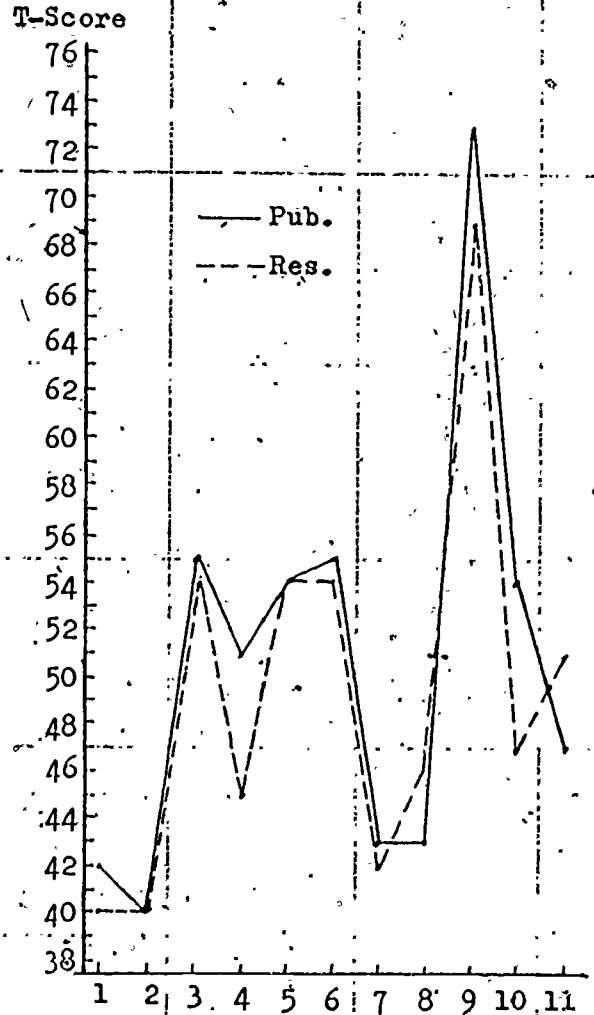

FIGURE 10

Personal Service Workers (P.Sv)

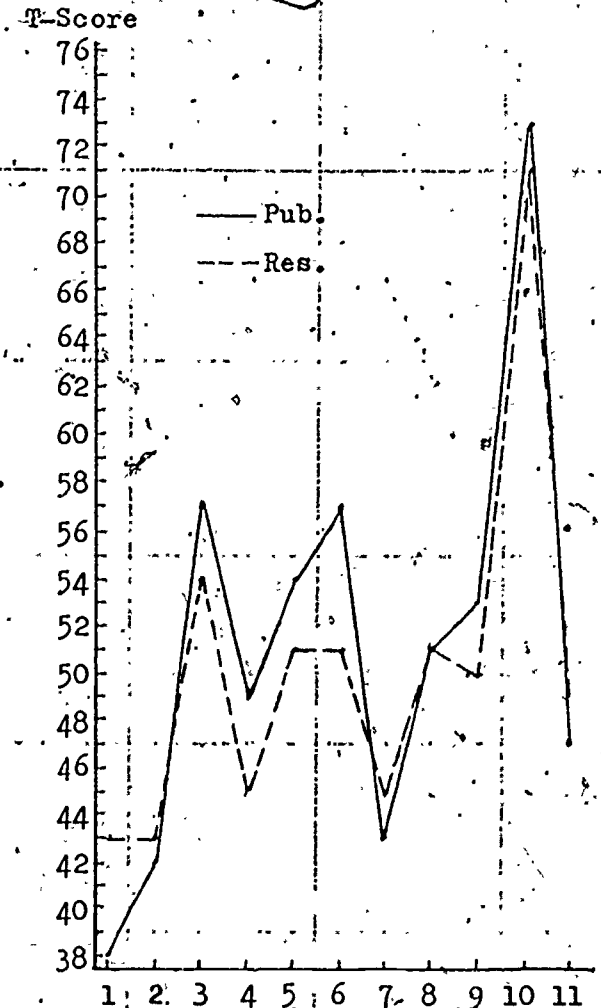

FIGURE 11

Laundry Workers (Ly)

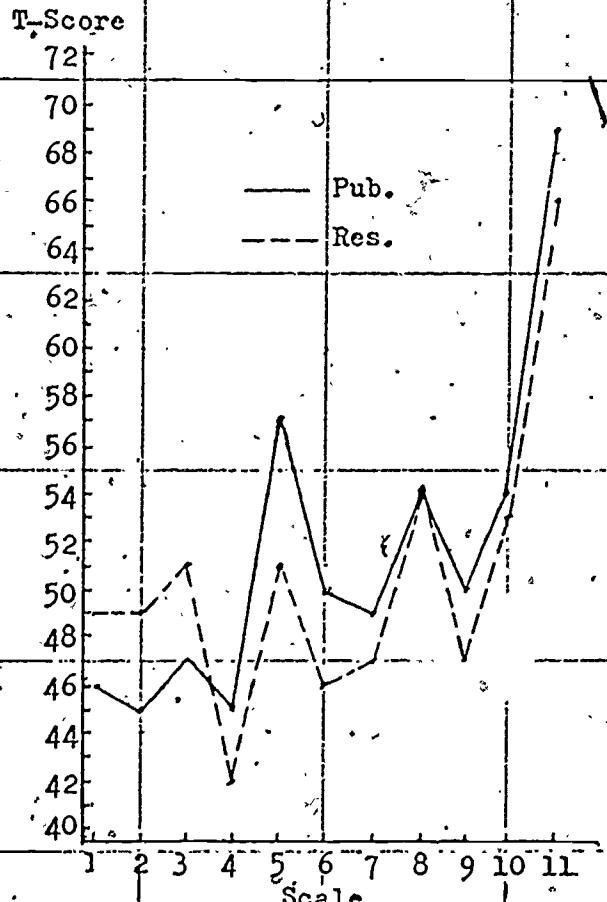

FIGURE 12

Materials Handling Workers (M Hg)

FIGURES 13-20

Typical profiles for eight female occupational groups attending public schools and residential facilities

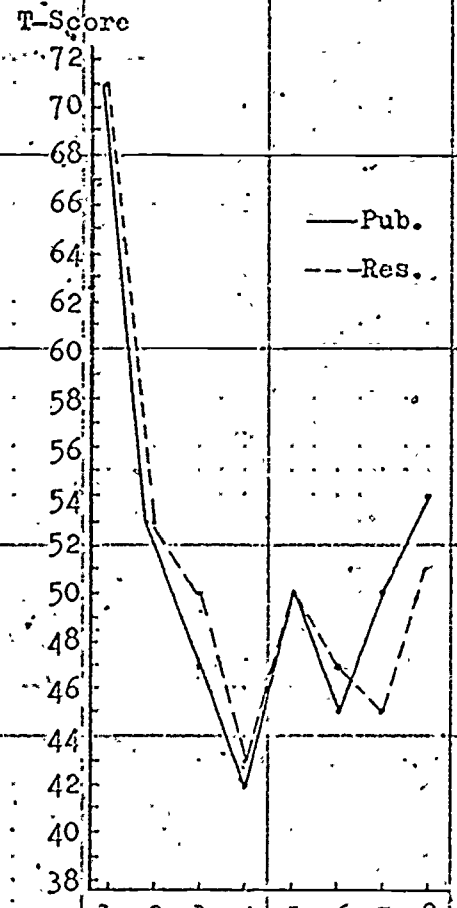

FIGURE 13

Laundry Workers (Ly)

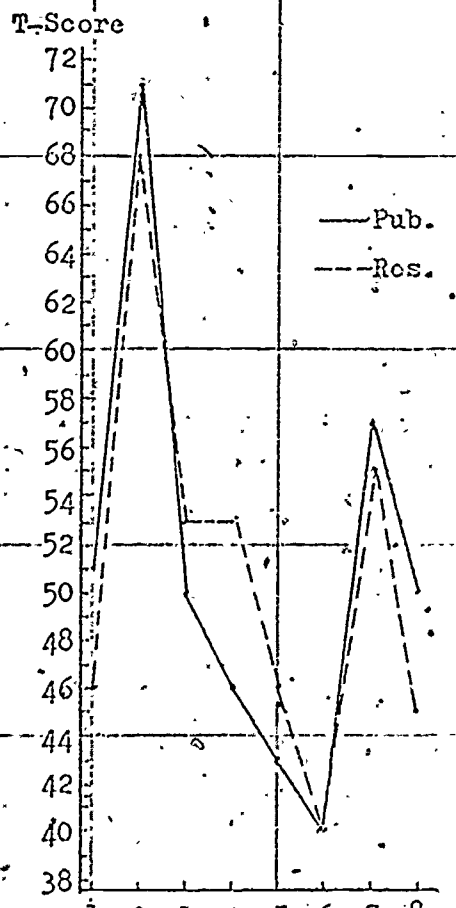

FIGURE 14

Light Industrial Workers (Lt-Ind)

Key

1. Ly	5. F S
2. Lt-Ind	6. P Cr
3. Cl	7. Hort
4. P Sv	8. Hsk

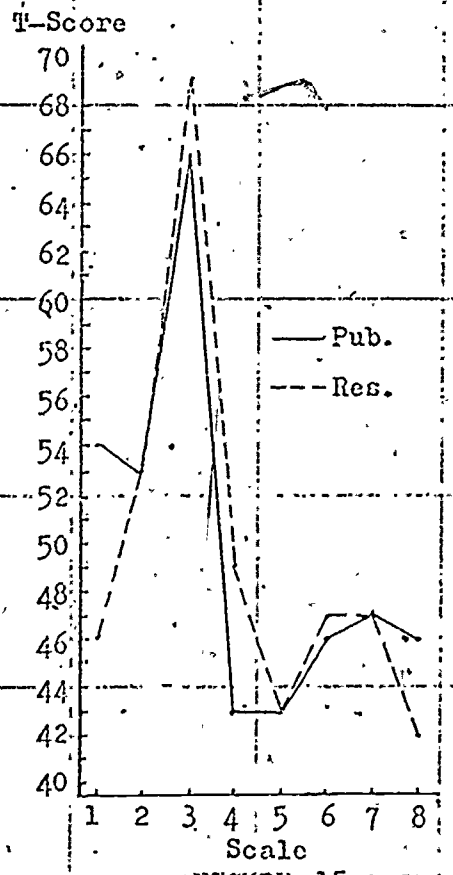

FIGURE 15

Clerical Workers (Cl)

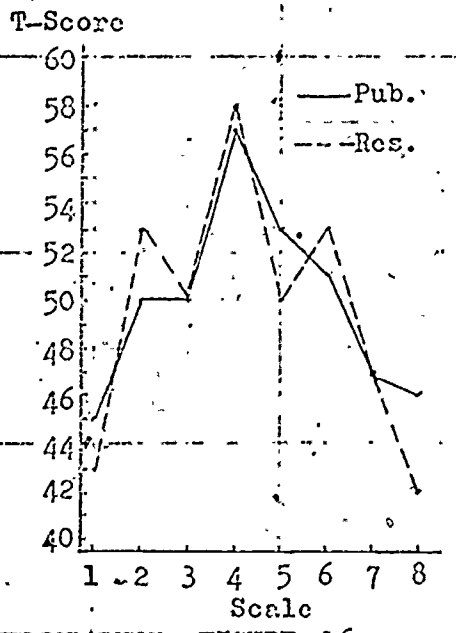

FIGURE 16

Personal Service Workers (P Sv)

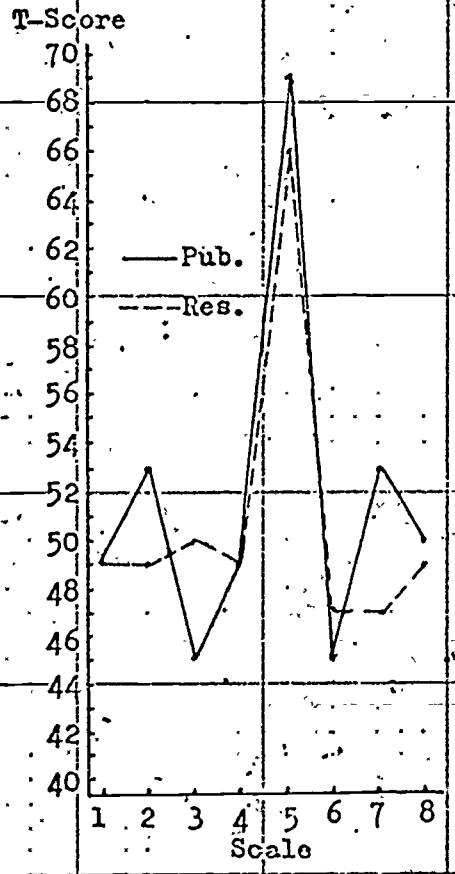

FIGURE 17.

Food Service Workers (F S)

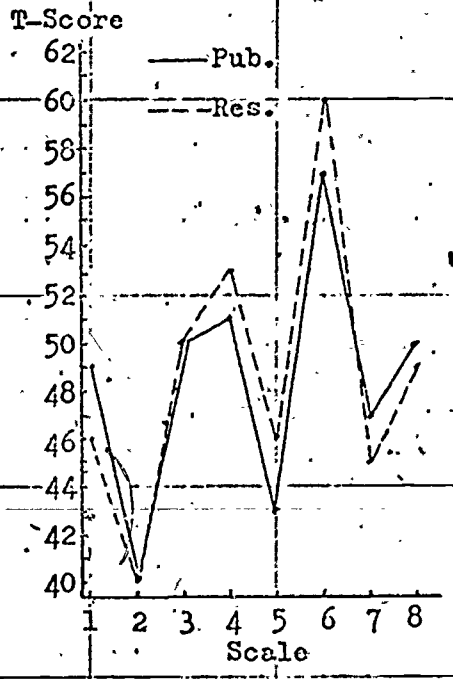

FIGURE 18.

Patient Care Workers (P Cr)

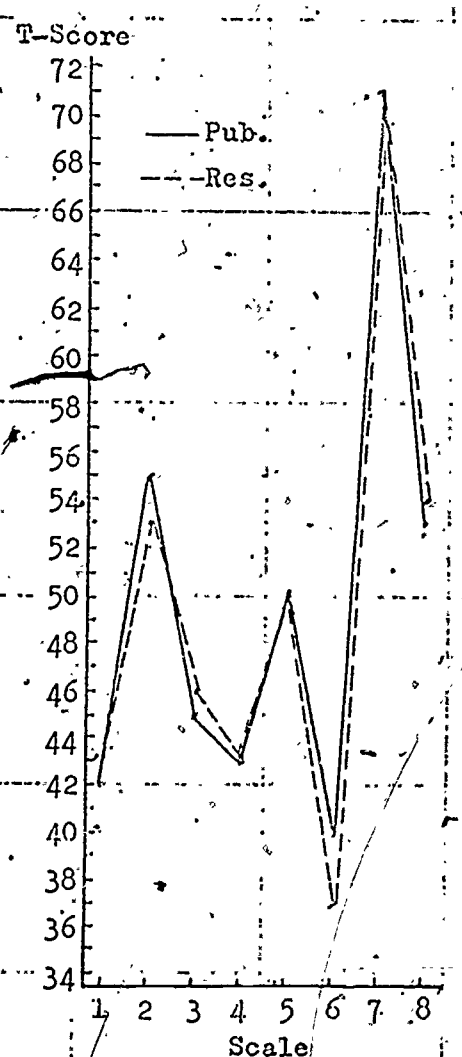

FIGURE 19

Horticulture Workers (Hort)

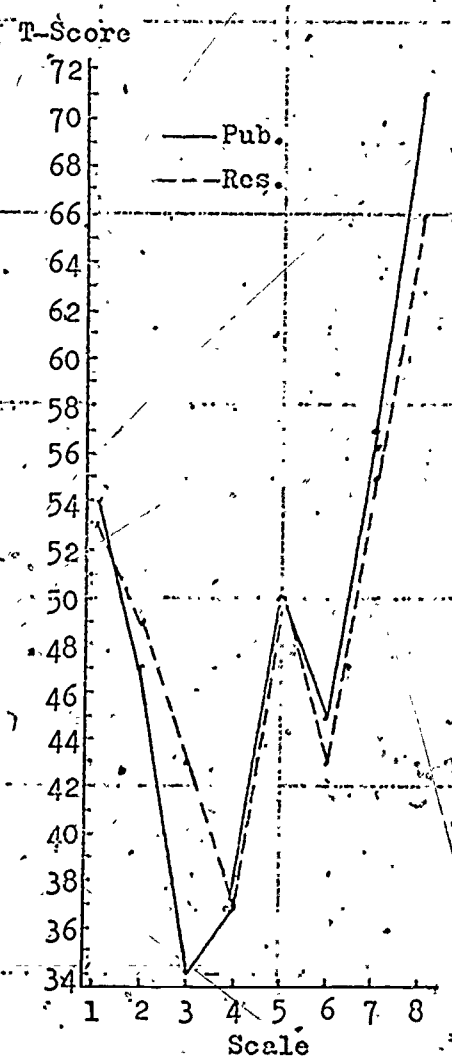

FIGURE 20

Housekeeping Workers (Hsk)

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READING-FREE VOCATIONAL INTEREST INVENTORY: FEMALE

(F)

Experimental Booklet D *Devised by Ralph L. Becker, Research Director*

Sample #1

Last Name First Name Date

Birthdate Age: Yrs. Mos. IQ Grade (circle one) 9 10 11 12 Other

School or Institute City State

HOW TO USE THIS BOOKLET: This is not a test. There are no wrong or right answers. Your answers will tell about the kind of work you like best.

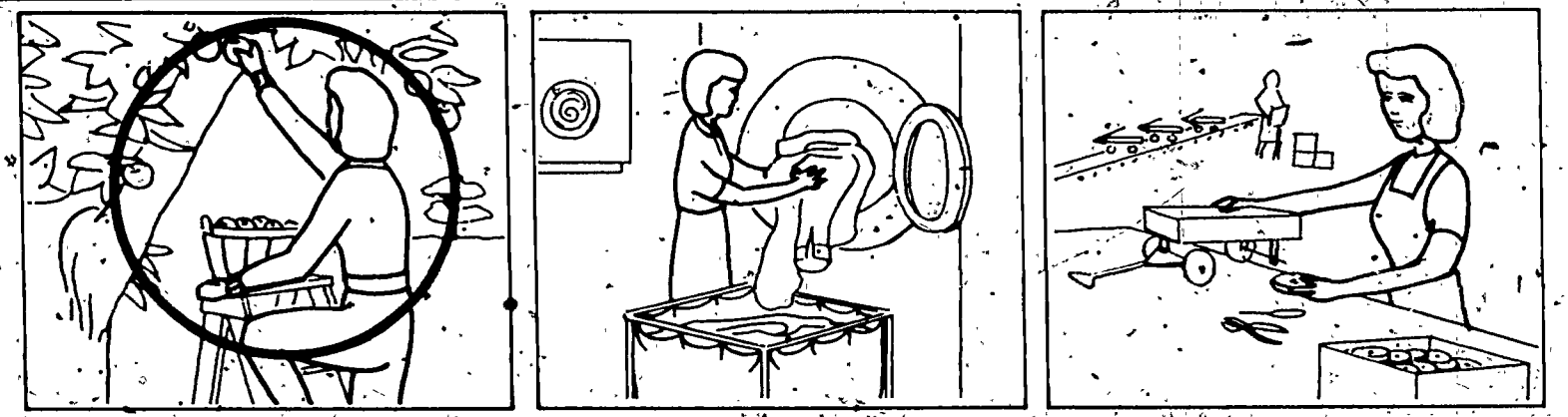
On each page of this booklet there are groups of three pictures in a straight row, just like the three pictures at the bottom of this page. Look at the example, below. If you liked best the picture of picking apples, you would make a big **circle** on this picture, as shown. You can only choose one picture of the three, so choose the one you like best.

If you like all three pictures, you must decide on only one, so make a circle on the picture you like best. If you do not like any of the three pictures, choose the one you would do for only a very short time.

There are 40 rows of pictures of people working at different jobs just like the pictures below. Be sure you circle one picture in each group of the 40 rows of pictures. If you do not understand a picture, raise your hand.

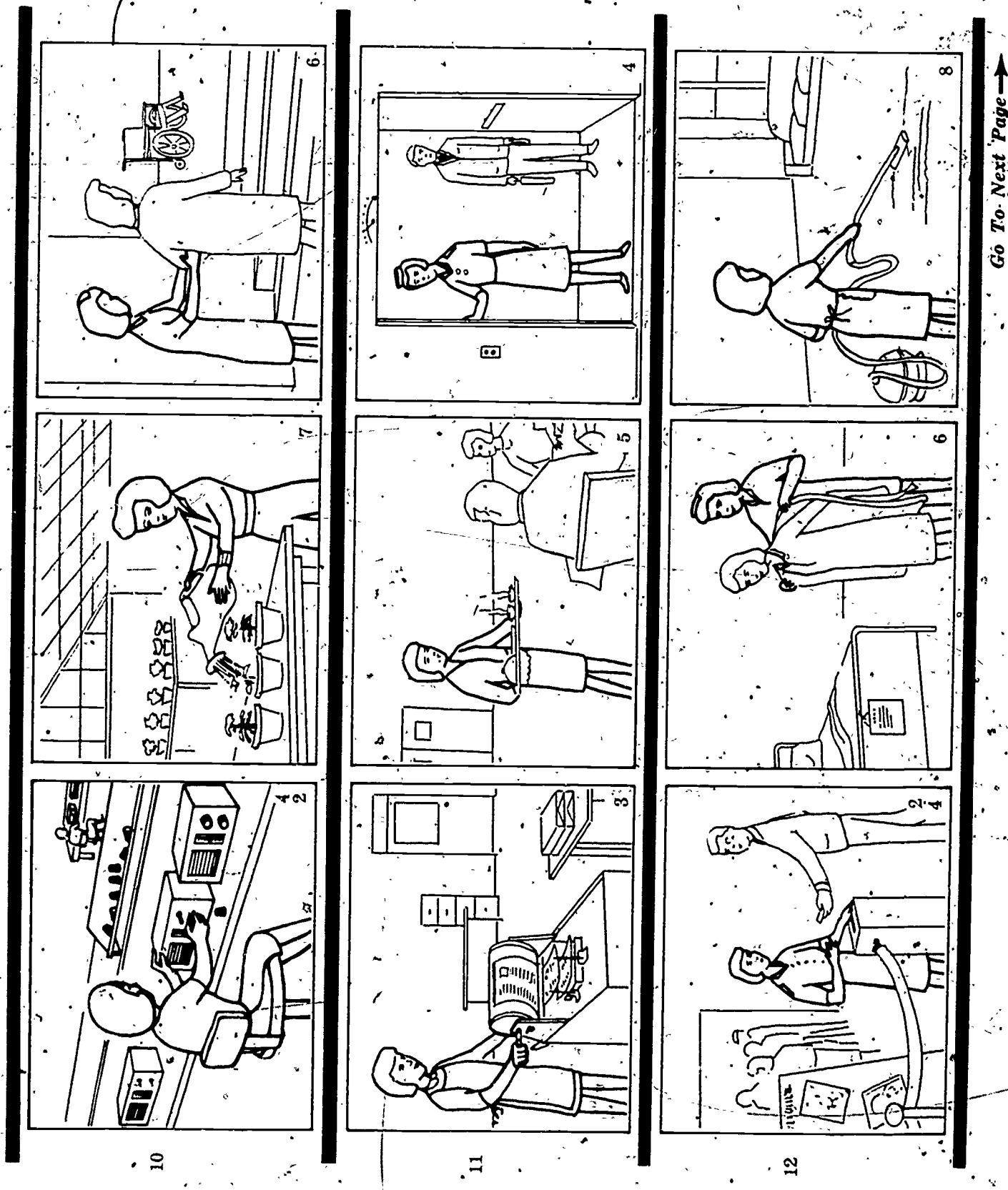
Turn the page and begin.

EXAMPLE



Under HEW Grant #OEG-0-8-080188-4421(032)

Sample #2



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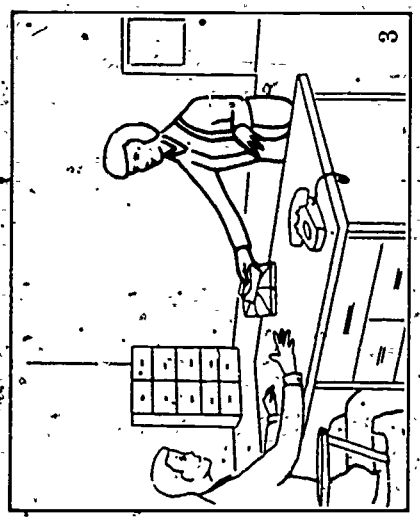

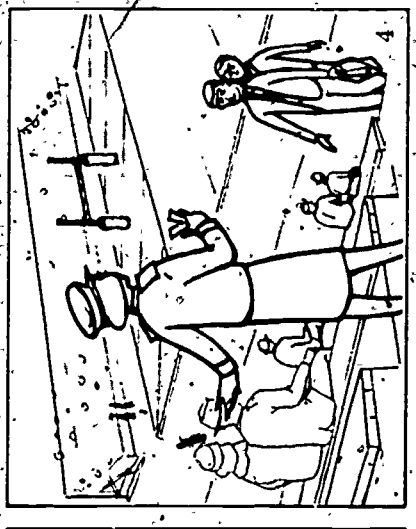

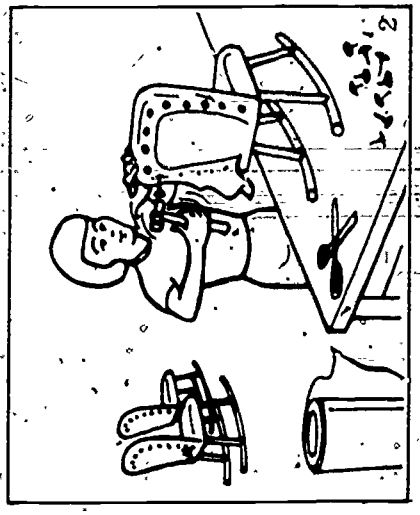

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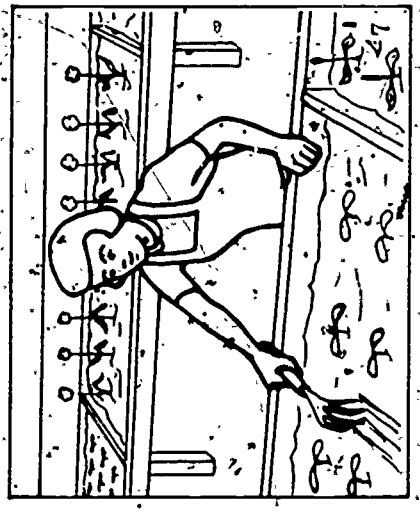
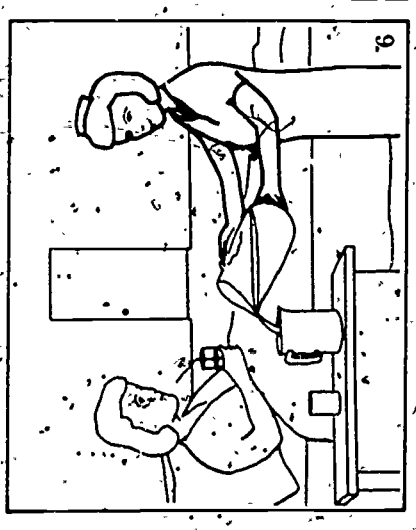
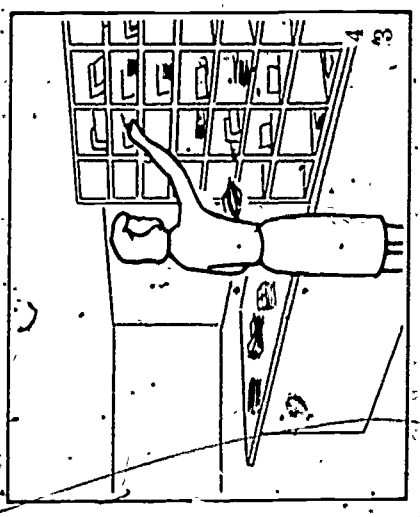
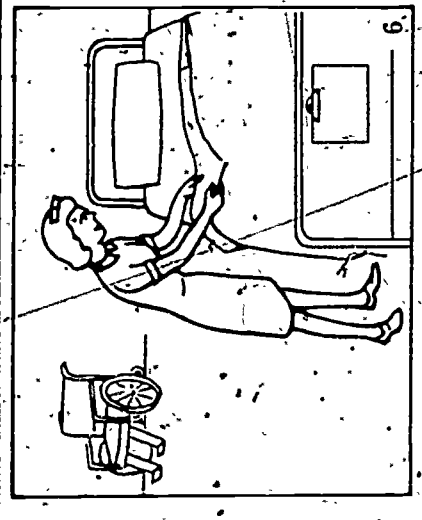
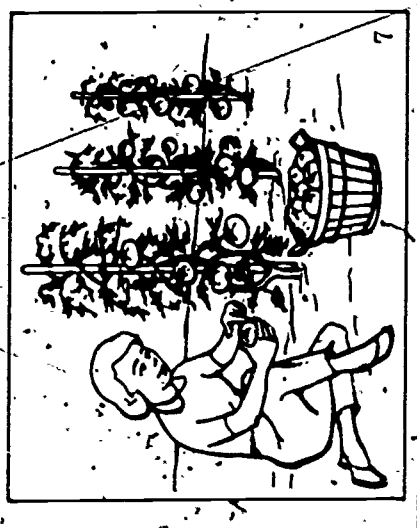
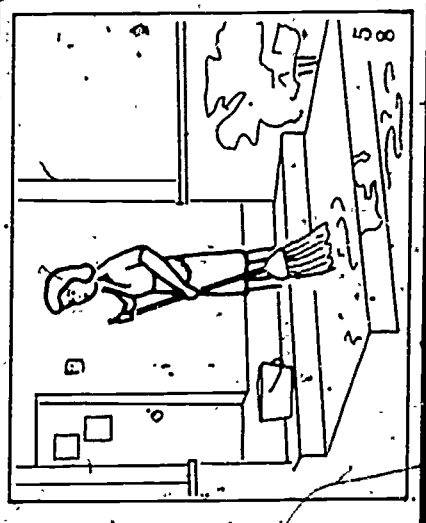










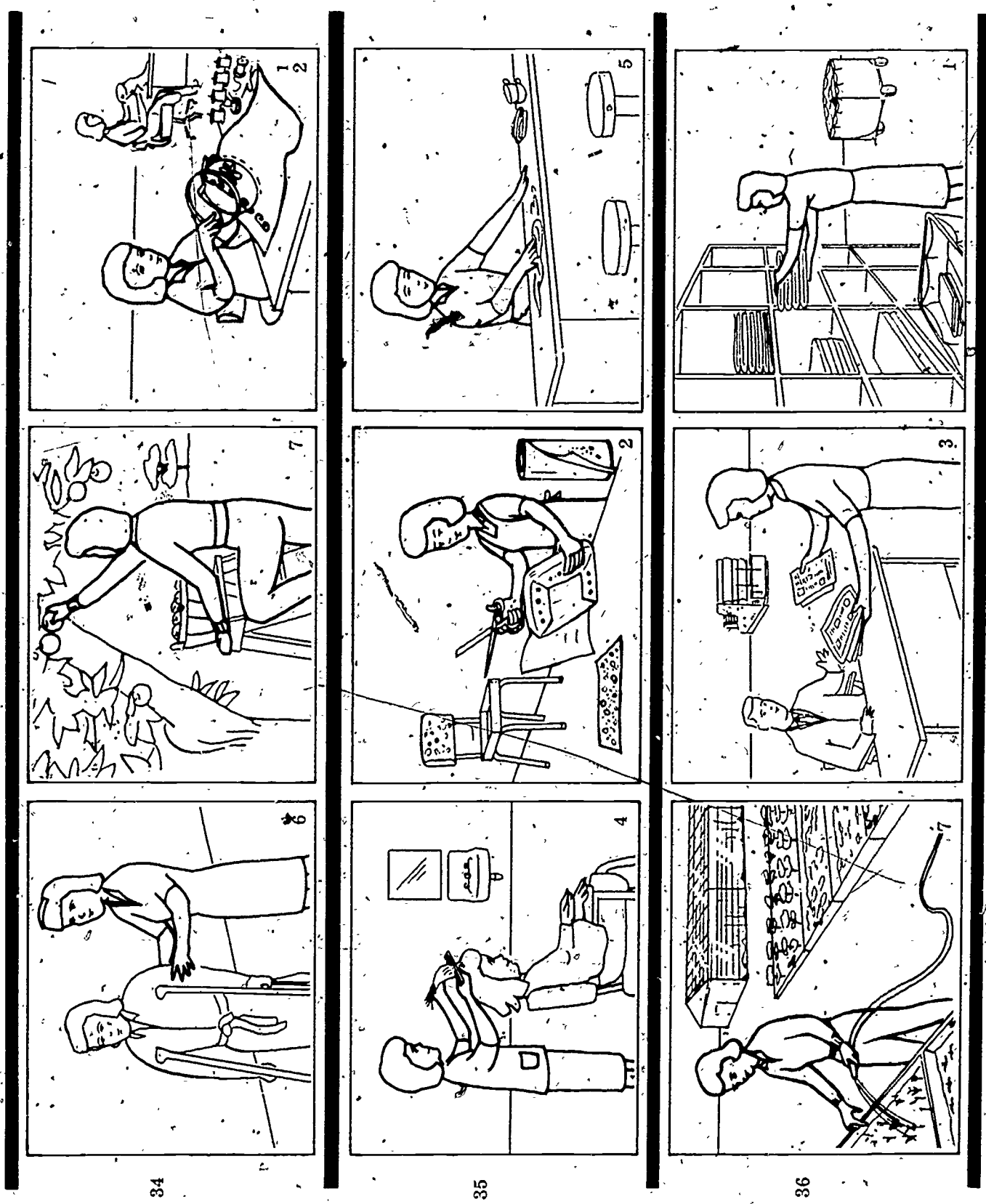


16

17

18

Sample #4



Sample #5

F

READING-FREE VOCATIONAL INTEREST INVENTORY - Answer Sheet - FEMALE

Name: _____ Date _____

1.	1	2	3	13.	8	4	2	25.	8	2	1	37.	5	3	1 8
2.	2 4	5	6	14.	4	7	1	26.	1	7	4	38.	7	2	6
3.	7	8	3 1	15.	4 5	1	8	27.	6	2	5	39.	5 1	4 6	7
4.	2	4	3	16.	6	7	3	28.	5	4	3	40.	3	4	5
5.	5	7	6	17.	7	6	4	29.	1 2	8	6				
6.	8	1	2	18.	5 8	4 3	2	30.	8	1	7				
7.	3	4	8 5	19.	6	8 2	3	31.	8	5	3				
8.	1 8	6	7	20.	8	1	5 4	32.	1	4 6	2				
9.	8 1	3	5	21.	7	4	5	33.	5	1	8				
10.	4 2	7	6	22.	4	2	1	34.	6	7	1 2				
11.	3	5	4	23.	6	7	2 3	35.	4	2	5				
12.	2 4	6	8	24.	8	3	2 4	36.	7	3	1				

Key	Tally	Score
1		
2		
3		
4		
5		
6		
7		
8		

Sample #6

READING-FREE VOCATIONAL INTEREST INVENTORY

Numerical Code for Major Interest Areas

Male	Female
1. Automotive	1. Laundry Service
2. Building Trades	2. Light Industrial
3. Clerical	3. Clerical
4. Animal Care	4. Personal Service
5. Food Service	5. Food Service
6. Patient Care	6. Patient Care
7. Horticulture	7. Horticulture
8. Janitorial	8. Housekeeping
9. Personal Service	
10. Laundry Service	
11. Materials Handling	

Explanation:

In Male test booklets all items keyed #1 are Automotive clusters. All items keyed #2 are Building Trades items. For each of the eleven male interest areas sketches are identified by numerals located in the lower right section of each pictorial frame.

In Female test booklets all items keyed #1 are Laundry Service clusters. All items keyed #2 are Light Industrial items. For each of the eight female interest areas sketches are identified by numerals.

Where pictorial items contain two different numerals located in the frame, these items have been found to serve two different interest areas, and have been keyed accordingly.

To determine an examinee's preference for each interest area, count the number of times he (she) selects items that are keyed for that area. Each item is identified by key. For example, if a male subject selects 12 items keyed #1, his raw score on the Automotive scale is 12. In like manner, a frequency count is made for each of the 11 male interest scales and for each of the 8 female scales. Raw scores obtained in this way are then converted to percentile ranks by referring to the appropriate Percentile Norms Tables developed for the inventory. The percentile ranks allow for a direct measurement and interpretation of each subject's vocational likes and dislikes.

READING-FREE VOCATIONAL INTEREST INVENTORY: MALE

Experimental Booklet D *Devised by Ralph L. Becker, Research Director*

(M)

Sample #7

Last Name _____ First Name _____ Date _____

Birthdate _____ Age: _____ Yrs. _____ Mos. _____ IQ _____ Grade (circle one) 9 10 11 12 Other

School or Institute _____ City _____ State _____

HOW TO USE THIS BOOKLET: This is not a test. There are no wrong or right answers. Your answers will tell about the kind of work you like best.

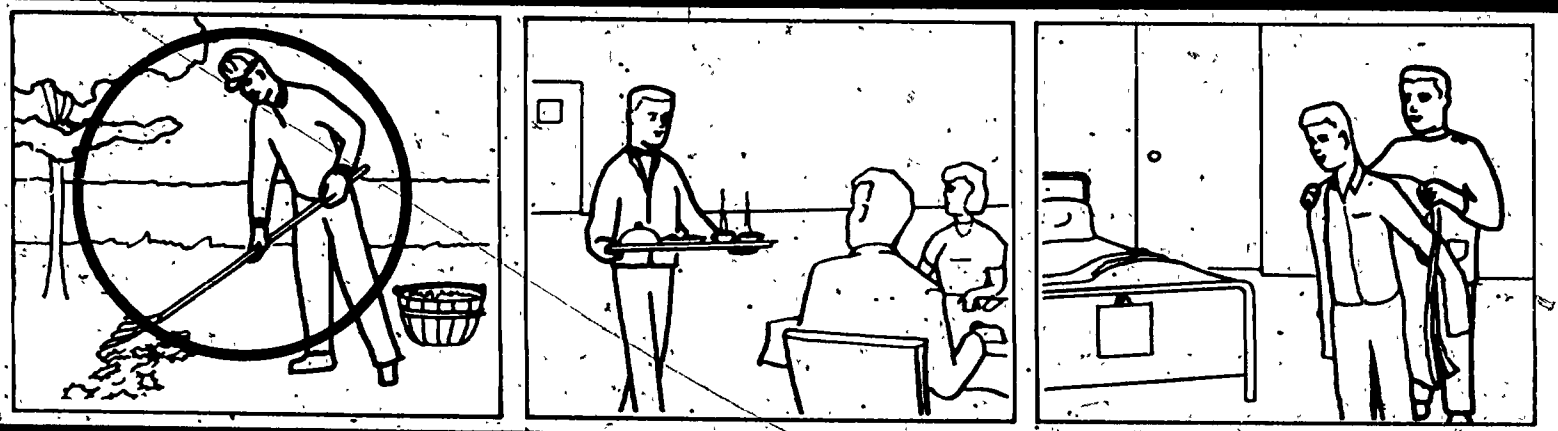
On each page of this booklet there are groups of three pictures in a straight row, just like the three pictures at the bottom of this page. Look at the example, below. If you liked best the picture of raking leaves, you would make a big circle on this picture, as shown. You can only choose one picture of the three, so choose the one you like best.

If you like all three pictures, you must decide on only one, so make a circle on the picture you like best. If you do not like any of the three pictures, choose the one you would do for only a very short time.

There are 55 rows of pictures of people working at different jobs just like the pictures below. Be sure you circle one picture in each group of the 55 rows of pictures. If you do not understand a picture, raise your hand.

Turn the page and begin.

EXAMPLE



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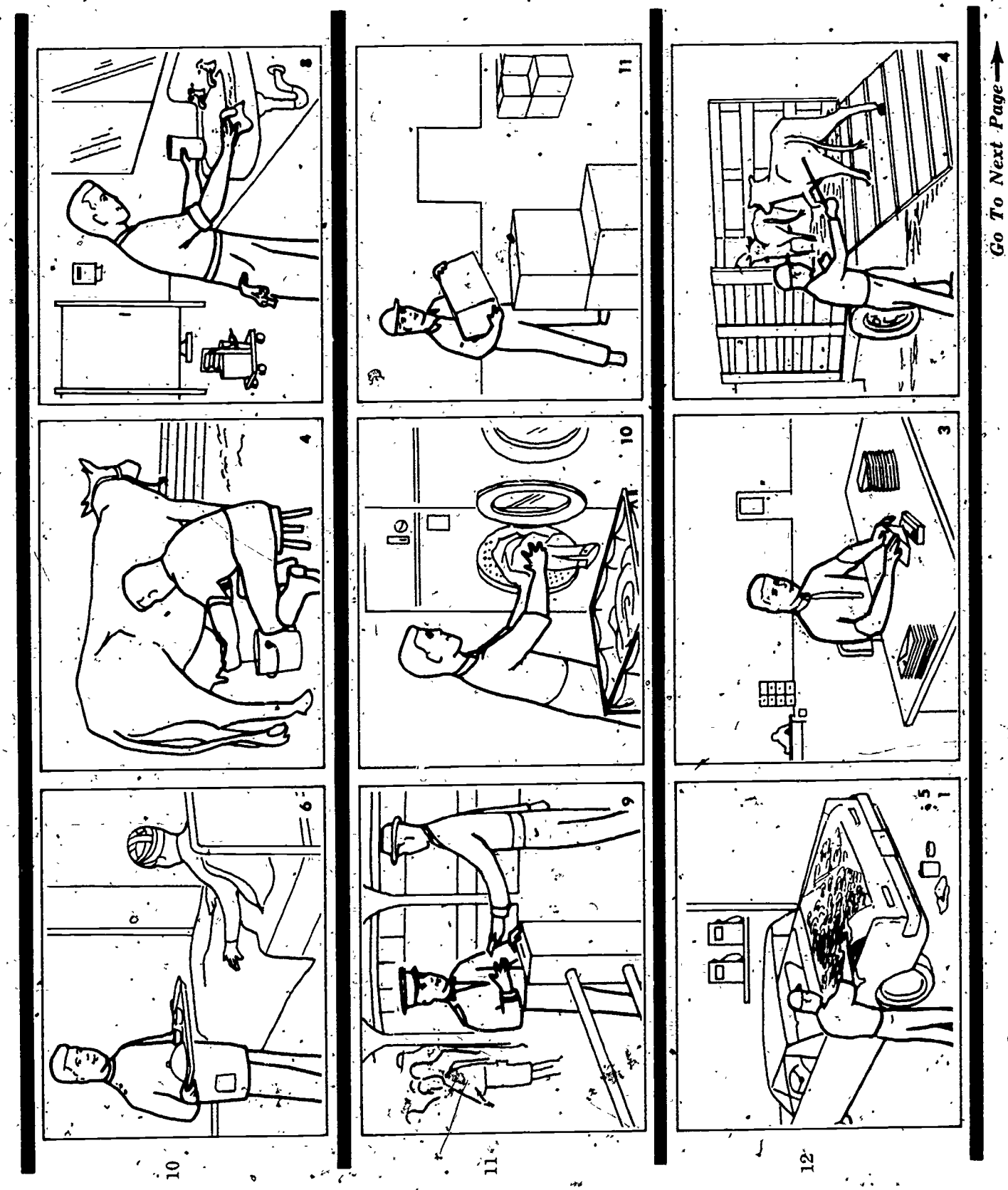
Sample #8



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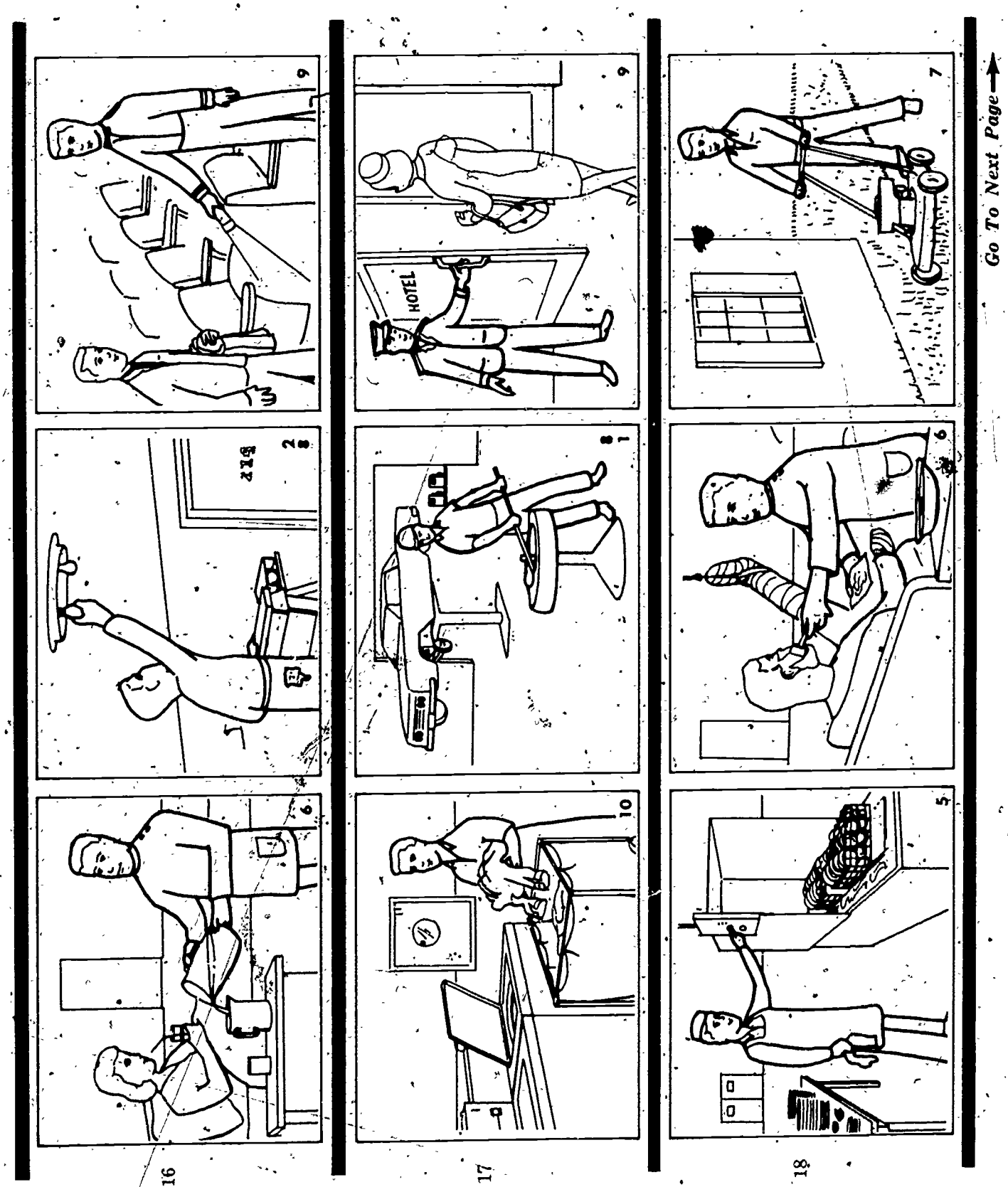
Sample #9



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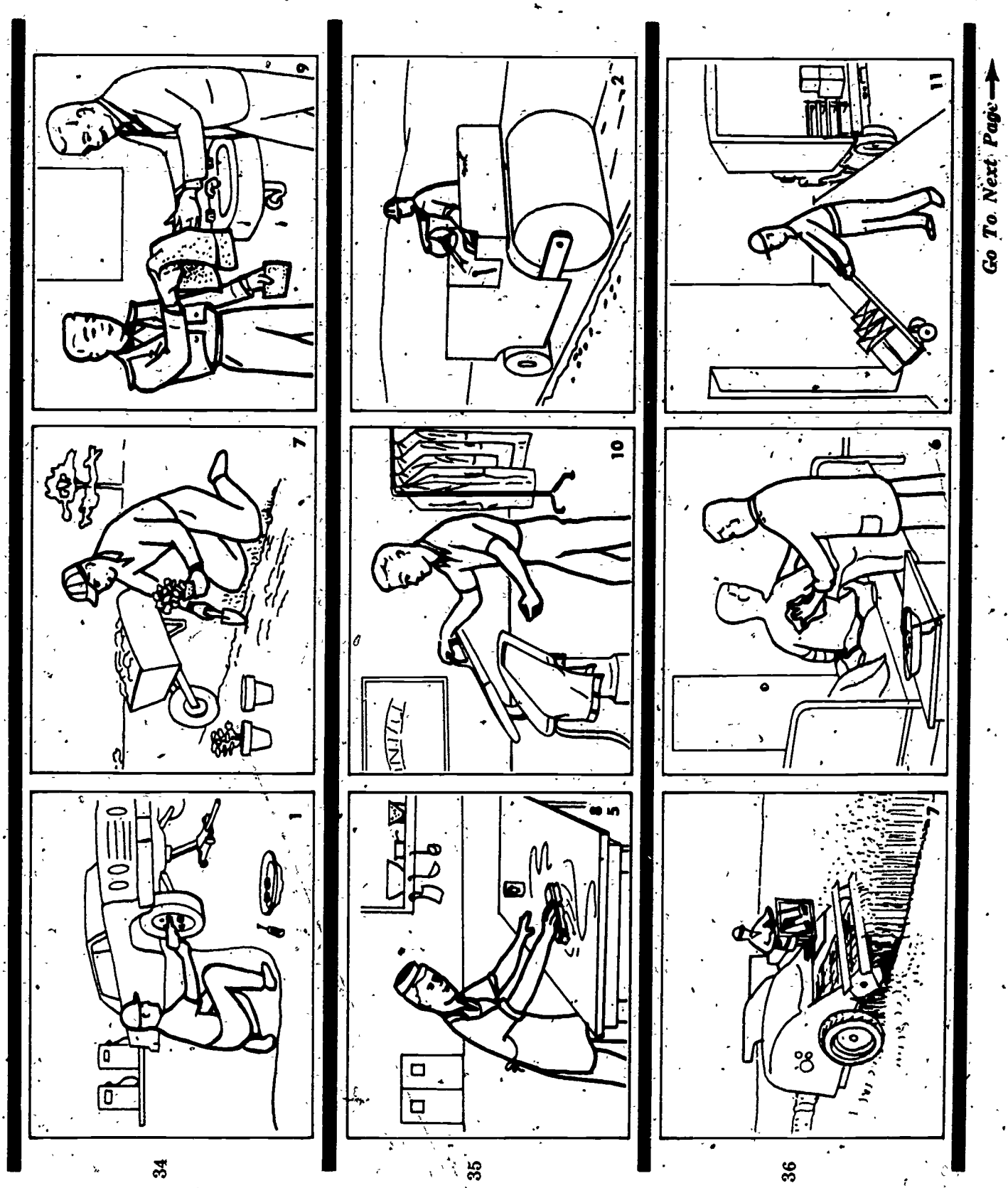

Sample #11

Table 4

Percentile Norms for the Reading-Free Vocational Interest Inventory,

Females, Public Schools, Grades 9-12

N = 1996

Area	Ly	Lt-Ind	Cl	P Sv	F S	P Cr	Hort	Hsk	
Keys	1	2	3	4	5	6	7	8	
%tile									%tile
99	15-19	15-19	16	16-21	15-18	15	14-15	14-18	99
98	14	14	15	15	14		13	13	98
97	13	13			13				97
95	11-12	11-12	13-14	14	12		11-12	11-12	95
90	10	10	12	13	11		9-10	9-10	90
85	9	9	11	12	10	14	7-8	8	85
80		8	10		9		6	7	80
75	8		9	11		13	5	6	75
70		7	8		8	12	4		70
65	7			10		11		5	65
60		6	7		7	10	3	4	60
55	6			9		8-9			55
50		5	6		6		2	3	50
45	5			8		7			45
40		4	5			6	1		40
35				7	5	5		2	35
30	4		4			4			30
25		3	3	6	4	3			25
20	3			5		2		1	20
15		2	2		3	1	0		15
10	2			4					10
5	1	1	1	3	2	0		0	5
3				2					3
2			0		1				2
1	0	0		0-1	0				1

THE EVALUATION AND MODIFICATION OF WORK BEHAVIOR OF EDUCABLE MENTALLY RETARDED CLIENTS

Jerry D. Chaffin, Ed.D.
Associate Professor of Special Education Administration
University of Kansas
Lawrence, Kansas

Introduction

The evaluation of behaviors which are important to productive vocational employment is of crucial concern to both rehabilitation and special education personnel. It is through evaluation that employment potential may be assessed, vocational goals established, and progress within a training sequence determined.

Recognizing the importance of evaluation in program operation, school work-study personnel throughout the country have established procedures for measuring both the work potential and the progress of the individual student during training. The former usually involves measures of intelligence, dexterity, personality and an understanding of the background of the student and his family. Progress within a training program is usually determined by the use of rating scales or forms which include such factors as dependability, initiative, appearance, work habits, and attitudes toward work. Though work-study personnel realize the importance of systematic evaluation and make provision for it, procedures from school to school vary considerably and usually are based on experience and subjective judgments rather than scientific research.

Research related to employment of the retarded is difficult because of the dynamic characteristics associated with the concept of employability.

Judgments regarding vocational activity must consider not only characteristics of the individual client, but also the type and complexity of the job in which he may function, and, in addition, factors associated with employer or supervisory attitudes. Considered singly, each of these factors present formidable research problems. Add the effects of interaction of these variables and such research becomes distressingly complex.

The research on evaluation and training of educable mentally retarded clients reported in this paper began in 1964, the first year of the Kansas Project, a 3-year selected demonstration project federally supported by the Vocational Rehabilitation Agency. The purpose of the project was to demonstrate the effectiveness of the combined efforts of Rehabilitation and Education personnel in habilitating educable mentally retarded clients. The results of this project are reported elsewhere (Chaffin, et al; 1971).

A primary assumption throughout the Kansas Project was that actual employers, observing and supervising student clients in their business establishments, could provide meaningful and accurate assessment of clients' work behavior. Therefore, from the beginning of the project each student was exposed to a variety of short work experiences in the community as soon as he entered the program. This exposure to different supervisors in different businesses at different tasks allowed the important variables of job success, attitude of supervisor, task complexity, and work environment to operate differentially on each client. Despite the fact that we had no relative measures of any of these variables nor a discrete measure of their effect on any client, general differences in the work behavior of the clients were very obvious. Treatment, then, of work related problems was developed from employers' descriptions of the client's difficulties.

With the above procedures as standard for evaluation during the project, the staff directed considerable effort toward understanding the content of these evaluations, hoping some precision might be added to the evaluation and vocational training procedures of mentally retarded individuals. First, the staff conducted a comprehensive examination of factors which might effect employability as reported in the literature. Secondly, procedures were outlined whereby the staff collected descriptive accounts of behavior associated with successful and unsuccessful students in the project. These behaviors were incorporated into two different evaluation forms and systematically researched. A final effort involved the consideration of a single variable (production rate) which the staff believed to be highly influential on the employer's judgment of successful and unsuccessful employees. Each of these approaches is considered separately below.

Review of Factors Affecting Employability as Reported in the Literature

Many investigators have attempted to isolate specific factors affecting the employability of the educable mentally retarded. Since complete reviews of these investigations may easily be found, this will not be attempted here. The most comprehensive of the reviews on the subject of employability is Windle's (1962) monograph which includes nearly 300 references. Other reviews may be found in the work of Tizard, Litt and O'Connor (1950), Shafter (1957), Kolstoe (1961), and Vance and Cegelka (1970).

Kolstoe (1965) and other investigators have pointed out that studies of specific factors related to employability of the mentally

retarded often present confusing results. The contradictory nature of these studies is best illustrated if each factor presumed by investigators to affect employability is considered independently of other factors. Fragmenting the studies in this way may limit the reader's understanding of the study as a whole, but it can be justified because of the readiness with which the effect of a particular variable on employability can be examined.

Intelligence

Studies reporting on the relationship between intelligence and employment success have shown varied results. Five investigations, Abel (1940), Baller (1936), Collman and Newlyn (1956), Jackson and Butler (1963), and Phelps (1956) found a significant relationship, while eight others, Baer (1961), Bobroff (1956), Cowan and Goldman (1959), Hartzler (1951), Kolstoe (1961), Madison (1964), Voelker (1963), and Shafter (1957), found IQ to be a non-significant factor. The wide range of IQ scores studies and the fact that task complexity (and its relation to IQ) was never considered (Kolstoe and Frey, 1965) serve to further complicate this issue; however, a general consensus would seem to be that any IQ from 40-80 will not interfere with employability if job selection is carefully done. It seems likely, though, that opportunity for placement should be greater if IQ increases.

Chronological Age

The results of studies considering this factor as it relates to employability have also been equivocal. Kolstoe (1961) found that the mean age of employed clients was slightly less than the mean age of unemployed clients, whereas others, Deno (1965) and Hartzler (1951) have

found that older clients were more employable. Neff (1959) and Shafter (1957) found no significant relationship between age and employability.

These findings are not so inconsistent when one examines the actual ages of clients studied. Both Neff and Shafter, who found age was not an important factor, studied previously institutionalized clients of an employable age. Kolstoe's subjects were between the ages of 16 and 40 with a median of 19 and were referred because they were considered unemployable by the counselor in their local community. The fact that a younger age was associated with successful employment in this group may be an indication of less resistence to training rather than to age or maturity. The Minneapolis study (Deno, 1965) involved clients between the ages of 16 and 24 with a mean of 20 who had left school two to five years earlier. Thus, the older clients may have had more opportunity to find a comfortable place in the employment world. All other factors being equal, age alone is probably not a critical determinant of employability, assuming that the individual is of an employable age.

School Achievement

School achievement and how it relates to successful employment has been studied by Cowan and Golman (1959), Deno (1965), Green (1945), Madison (1946), and Shafter (1957), all of whom found no relationship. However, Voelker (1963) reported that his employed subjects had significantly higher scores in reading and arithmetic, while Kolstoe (1961) found that his unemployed subjects had slightly higher achievement scores than the employed. Statistical significance was

not found, however. Erickson (1966) also found school achievement related to employability. Number of years spent in school was also found to be non-significant by Kolstoe (1961) and Shafter (1957), whereas the Minneapolis Study (Deno, 1965) found no relationship in the group studied.

The data suggest that successfully employed retardates have learned their skills somewhere other than school and that school environment, which is characteristically low, is not critical to job success. The evidence regarding these factors is far from clear and further study is needed, since it seems logical that increased achievement would increase the range of vocational opportunities.

Influence of the Family

Influence of the family as it relates to the employability of the retardates has been found to be of significance by a number of investigators. Cowan and Goldman (1959) do not directly consider this problem but suggest that a positive or negative influence does exist. "Stability of the home" has been referred to by both Abel (1941) and Green (1945) as a factor related to successful employment. In agreement are Jackson and Butler (1963) and Voelker (1963) who report continuity of home life as significant and Neff (1959) who found that "good and moderate support" from the family was found among a large number of his successful workers. Madison (1964) also reports that "family contact during work placement" was significant in his study. It seems appropriate to conclude, therefore, that a stable home, supportive of the retarded individual, is apparently important to his eventual success in employment.

Personality

There can be little doubt that personality is intricately related to

the employability of the retarded. Specific personality characteristics have been mentioned as determinants of job success by many investigators. Emotional stability has been cited by Bronner (1933), Gunzburg (1958), and Hay and Cappenburg (1931). Gregariousness was found important by Hegge (1942) and Whitcomb (1945) though not by Shafter (1957) who mentioned obedience and truthfulness. Abel (1940) emphasized the importance of ambition and self-respect in successful employment.

The *Minneapolis* Report (1965) has cited "inadequate, handicapping attitudes and motivation patterns" as contributing to the job termination of 56% of the clients studied. Attitude and motivation are again mentioned by Thomas (1965) who adds "poor social judgment."

Some attempts have been made to objectify the influence of personality factors on job success. Sarason (1943) used the Thematic Apperception Test with a group of twelve high-grade mentally defective boys and reported that the "data derived from the Thematic Apperception Test can be of value in the all-important task of placement." But as Patterson (1964) indicated, he (Sarason) "does not specify just how they can be of value." Some other studies (Connors, Walkon, Haefner, and Stotsky, 1960; Stotsky and Weinburg, 1956) have used sentence completion type tests to relate personality to employability and have been only moderately successful.

More objective data is needed to provide information about the precise personality characteristics which may be important to vocational success. However, research has indicated that a rating of subjective judgment regarding personality (or personal adjustment) can be predictive of employment success (Deno, 1965; Voelker, 1963; Warren, 1961).

While subjective judgments seem to be most accurate, a poor employment prognosis based on an individual's personality or personal adjustment is not easily translated into a corrective instructional program. Perhaps this is why Windle (1962) has contended,

> Personality sometimes appears to be the last refuge of the mystic. This uncharted jungle of hypothetical constructs seems to have taken the place of the soul in religion and free will in common sense. Behavior which cannot be explained on the basis of intelligence, education, physical skills and other known variables is usually referred to personality. In the field of mental subnormality, personality is especially likely to be used as an explanatory crutch.

Figure 1 provides a summary of the previously mentioned studies.

Behavioral Descriptions

The review of the literature failed to reveal any specific factors which were distinctly indicative of employability, with the two possible exceptions of the areas of home influence and personality. While Windle's caustic remarks about the latter factor may be somewhat justified, most authorities agree that personality characteristics of an individual are important to his job success. However, these characteristics are not sufficiently differentiated to allow the initiation of a specific modification program. And measurement of personality variables, especially with the mentally retarded, is virtually impossible. Altering home conditions, the other factor possibly related to employability, seems unlikely, especially at the senior high level.

Obviously lacking from the review were descriptive accounts of behavior which might be associated with successful or unsuccessful employment. In view of this, it was determined by the staff that accurate, behavioral descriptive accounts, reported in narrative form, should be

Figure 1
FACTORS AFFECTING EMPLOYABILITY

Factor Variable	Related to successful employment	Not related to successful employment
1. Socio Economic Status	Rautman (1949); Low Kolstoe (1961); High	Minneapolis (1965)
2. Chronological age	Hartzler (1951); Older Minneapolis (1965); Older Kolstoe (1961); Younger	Neff (1959) Shafter (1957)
3. Intelligence	Abel (1940) Baller (1936) Collman & Newlyn (1956) Jackson & Butler (1963) Phelps (1956)	Baer (1961) Bobroff (1956) Cowan & Goldman (1959) Hartzler (1951) Kolstoe (1961) Madison (1964) McIntosh (1949) Shafter (1957)
4. School Achievements	Voelker (1963) Kolstoe (1961)	Baer (1961) Cowan & Goldman (1959) Minneapolis (1965) Green (1945) Madison (1964) Shafter (1957)
5. Years in School	Minneapolis (1965)	Kolstoe (1961) Shafter (1957) Baer (1961)
6. Years in Special Class	Minneapolis (1965) positive Kolstoe (1961) negative	Baer (1961)
7. Stability or Continuity of Home Life	Abel (1940) Cowan & Goldman (1959) Green (1945) Madison (1964) Jackson & Butler (1963) Voelker (1963) Neff (1959)	

collected on all clients. Hopefully, these behaviors could be analyzed later and significant behaviors included on the evaluation form.

The initial evaluation form used in the Kansas Project was developed by Kolstoe (1961). This evaluation form included most of the presumed characteristics needed for successful employment that were included in other evaluation forms and had the further advantage of being researched by both Kolstoe (1961) and Warren (1961). This form (see Appendix A) was used for about six months - until the staff had had sufficient experience to make some meaningful changes.

After a consideration of problems of evaluation up to this point, a number of things seemed obvious to the project staff. First, when evaluation procedures provide excessive structure to the interview situation, the employer is more likely to respond as he "thinks" the interviewer wants him to, rather than expressing his real feelings about the employee. It is possible that too much structure makes him uncomfortable, thus altering his responses, or it may be that excessive structure creates an atmosphere that reflects a formal "grading" situation for the employee. Therefore, the employer may modify his responses in favor of the employee so that the client will receive a "good grade" at school.

Next, it was obvious that the evaluation tool should be as short as possible but it must retain thorough coverage of all relevant areas of employability. An efficient evaluation form including these areas is important for conserving time for both the interviewer and interviewee.

In order to insure that all relevant areas are considered during the interview, some structured items are necessary. However, these items should be presented in a way which will influence the employer's responses as little as possible. For example, to ask if the student has a "clean

and neat appearance" suggests that these qualities are a requisite for that job. It may be better to ask if a student employee's appearance is "appropriate" for the job. If the answer to this is negative, then a specific example as to "why not" should be elicited from the employer.

A final section to serve as a criterion reference or validation of other items is most essential. This statement would simply ask the employer, "Would you be as willing to hire the student as you would the average applicant, if the job were available?" Previous research (Kolstoe, 1961; Warren, 1961) has shown this subjective response to be predictive of later employment at better than .01 level of confidence.

After a consideration of these factors, a new evaluation form was constructed. A research design was developed which used this scale and was directed toward the exploration of specific characteristics that might be critical to employability. Two studies were carried out, the second being a partial replication of the first. They are reported below.

Determining Critical Areas of Employability

Study #1

Background

From February 2, 1966, through March 1, 1966, thirty-nine work sample evaluations were obtained on 31 special education students from Shawnee Mission North and Rosedale High Schools. The following is a statistical analysis of the data resulting from these evaluations.

The evaluation schedule used in this investigation (see Appendix B) consists of four sections. Section one required employers to comment spontaneously on the student's performance. Section two asked for the

student's strongest asset and his greatest liability. Section three consisted of behavioral statements to be checked as descriptive or non-descriptive of the student in question. The final section, which was used primarily as a criterion index, asked the employer whether or not the student was considered employable as a paid worker for the position.

The evaluation schedules were administered to the employers by a project staff member. With one exception, all evaluations were obtained by the vocational rehabilitation counselor. In general, the administration of the evaluation schedules was approached in a flexible manner, with the interviewer modifying questions when he deemed this necessary. Below the general findings of the investigation will be discussed.

Of the 31 students, 23 were from Shawnee Mission North and eight were from Rosedale. Two evaluations were obtained on eight students, all of whom were from Shawnee Mission North. Thus, 39 evaluations were obtained from 24 different employing agencies.

Method

The data were broken down in terms of employable (E), qualified employable (QE), and non-employable (NE) students. Analyses of variance were performed on IQ scores and chronological age which revealed that the three groups did not differ significantly on these variables. Inspection of the number of days employed revealed the data for the employable group to be markedly skewed. Therefore, a median test was applied, which revealed no significant difference among the three groups. In addition, it was observed that while 7 of the 8 Rosedale students were considered employable, only 5 of the 23 Shawnee Mission North students were considered employable. A chi square analysis revealed these differences to be significant beyond the .001 level.

Item Analysis

The 13 items included in section three were subjected to chi square analysis, with employment potential as the criterion. For the purpose of the analysis, the employable and qualified employable groups were combined. The results of this analysis are presented in Table I.

Inspection of Table I reveals that three items were significant at the .001 level, three items were significant at the .05 level, and one item was significant at the .02 level. Six other items were clearly non-significant. The three most significant items concerned the student's ability to work without supervision, the quality of his work and his production rate. Other significant items dealt with the student's perseverance, his lack of distractability, his ability to work without "clock-watching," and the student's appearance.

Preliminary Conclusions

1. With the present sample, IQ, CA, and number of days employed were not significantly related to employment potential.
2. Seven of the thirteen items exceeded the .05 level of significance. Six of these items were retained for inclusion in the second form of the evaluation schedule. Items four and five were somewhat redundant and were combined to make one item.
3. There appeared to be some small differences between employable and non-employable students in percentage of liabilities falling in various categories. It was decided that since this data was relatively unstructured and would distribute itself into a number of categories, it could be analyzed better when combined with similar data from the ensuing study.

TABLE I

PROBABILITY LEVEL OF

ITEMS WITH CRITERION OF EMPLOYABILITY

		P
1.	Student's appearance is appropriate for job.	.05
2.	Student catches on to skills more slowly than average (non-retarded) employee.	NS
3.	Student finds something to do or asks supervisor for another assignment after first task has been completed.	NS
4.	Student is able to persist at a task without becoming distracted.	.05
5.	Once student gets started on task, he finishes it.	.05
6.	Student works well without supervision.	.001
7.	Quality of student work coincides with supervisor's expectations for average (non-retarded) worker.	.001
8.	Student is a clock-watcher.	.02
9.	Student's rate of production compares with supervisor's expectations.	.001
10.	Student is able to get along with supervisor adequately.	NS
11.	Student is able to get along with co-workers adequately, i.e., little or no friction.	NS
12.	Student's punctuality is about what would be expected of average employee.	NS
13.	Student's attendance is about what would be expected of average employee.	NS

Study #2

To further study critical areas associated with employability, a partial replication of the first study was conducted. Retained for the second study were the seven questions previously determined to be significant. Questions two and three were rewritten and presented in a different form, and eleven new questions were added. Procedures for conducting this study were identical to Study #1. All evaluations obtained on students from March 2, 1966, through April 3, 1966, were included for statistical analysis.

Of the 36 students in this study, 30 were from Shawnee Mission North and six were from Rosedale. Two evaluations were obtained on nine students, all of whom were from Shawnee Mission North, and three evaluations were obtained for one student. Thus, a total of 47 evaluations were obtained from 21 employing agencies.

The data were broken down in terms of employable (E), qualified employable (QE), and non-employable (NE) students. An analysis of variance performed on IQ scores and CA revealed that the three groups once again were not significantly different on these variables. As in Study #1, an inspection of the number of days employed revealed data for the employable group to be markedly skewed. A median test was applied and significant differences among the groups were found (P=.05). It was observed that while four of the six Rosedale students were considered employable, only twelve of the 30 Shawnee Mission North students were considered employable. A chi square analysis, however, revealed these differences to be non-significant.

Item Analysis

The 19 items included in section three were subjected to chi

square analysis, with employment potential as the criterion. For the purpose of the analysis, the employable and qualified employable groups were combined. The results of this analysis are presented in Table II.

Inspection of Table II reveals that only three of the seven items retained from the previous study remained significant. These items pertained to the student's appearance and his quality and quantity of work. The four other items retained from the previous study because of their significance proved non-significant. These items referred to working without supervision, "clock-watching," and two items pertaining to distractibility which were combined in the second form. Three additional items were found to be significant in this study. These were questions relating to the student's personal initiative (.05), following instructions (.01), and conforming to rules and policies of the company (.01). Eight other questions were found to be non-significantly related to the criterion question. They were: able physically to do the work, seeks unnecessary assistance, verbalizing dislike for the job, withstands job interruptions, easy to get along with, listening to instructions, interrupting inappropriately, and responds well to criticism.

Conclusions - Studies 1 and 2

1. IQ and chronological age were found to be unrelated to employment potential, confirming the results of the Study #1. Number of days employed was found to be significant in Study #2 while not in #1. Study #1 found that students from Rosedale were apparently more employable, but this was not confirmed in this second investigation.
2. In view of the fact that appearance, quality and quantity of work were found to be significant in both studies, it is logical to conclude they are important areas of employability. However, the data also

TABLE II

PROBABILITY LEVEL FOR ITEMS WITH CRITERION OF EMPLOYABILITY

		P
1.	Is the student's appearance appropriate for the job?	.05
2.	When required, can the student stay at a job for a long period of time without being distracted?	NS
3.	Does the student work well without supervision?	NS
4.	Does the quality of the student's work meet employer's standard for the average worker?	.01
5.	Is the student a clock-watcher?	NS
6.	Does the student's rate of production meet employer's standard for the average worker?	.01
7.	Is the student physically able to do the work?	NS
8.	Is the student mentally able to do the work?	NS
9.	Does the student follow instructions?	.01
10.	Does the student know and follow the rules and/or policies for your company?	.01
11.	Does the student frequently seek assistance for minor work problems which may have been solved without help?	NS
12.	Has the student mentioned that he does not like the job?	NS
13.	Can the student be interrupted and still maintain efficiency?	NS
14.	Is the student easy to get along with?	NS
15.	Does the student exhibit personal initiative? Example either case.	.05
16.	Does the student seem to listen when receiving instructions?	NS
17.	Does the student frequently interrupt inappropriately?	NS
18.	Does the student respond well to criticism?	NS

suggest that the presence of any of these characteristics does not insure employability, since between 30 and 40% of the students receiving a favorable rating on these items were also considered unemployable.

3. The fact that upon replication only three of the previous seven significant items were confirmed resulted in a careful examination of the research method. The lack of reliability between the two studies could have been due to a number of variables associated with selection of students, variety of employer's attitudes, and the type and complexity of the job. These factors would appear to influence the outcome of this kind of research to the point of making it unfeasible unless they are controlled. However, control of these factors would likely result in rather sterile findings since the functional objective is to have an instrument that can be used with any retarded subject in any type of job working under any type of supervision.

Analysis of Employers' Comments on Client Assets and Liabilities

Study #3

The results of the first two studies were somewhat disappointing in that only three of the seven significant variables associated with successful employment were confirmed by the second study. This finding suggests those variables not confirmed in Study #2, though important, are not clearly critical to employment success when one also considers the variables of employer attitudes, job task, physical work environment and attitudes of other employees.

Figure 2 illustrates this point. The client characteristics in the shaded area are critical only in relation to the varying characteristics of the work environment. The three employee characteristics in the non-shaded area remain important to successful employment despite the characteristics of the work environment.

An additional investigation of critical characteristics associated with employability involved the analysis of employer responses to the questions: "What do you consider the student's strongest asset regarding the job?" and "What do you think is the student's greatest liability?"

Evaluation forms from both Study #1 (N=39) and Study #2 (N=47) were included in this analysis (Total N=86). Three of the forms did not have responsed to the question related to greatest asset and 12 forms did not provide data on the greatest liability of the student. Thus, the current analysis contains 83 employer responses to greatest asset and 74 employer responses to the client's greatest liability.

A careful study of the 157 employer responses resulted in the formation of six general categories suitable for grouping the individual responses. The responses were then placed into each general category and further identified as to whether the response was a liability or an asset and if the client being rated had been judged successful or non-successful for that particular work experience. The results of this study are summarized in Figure 3.

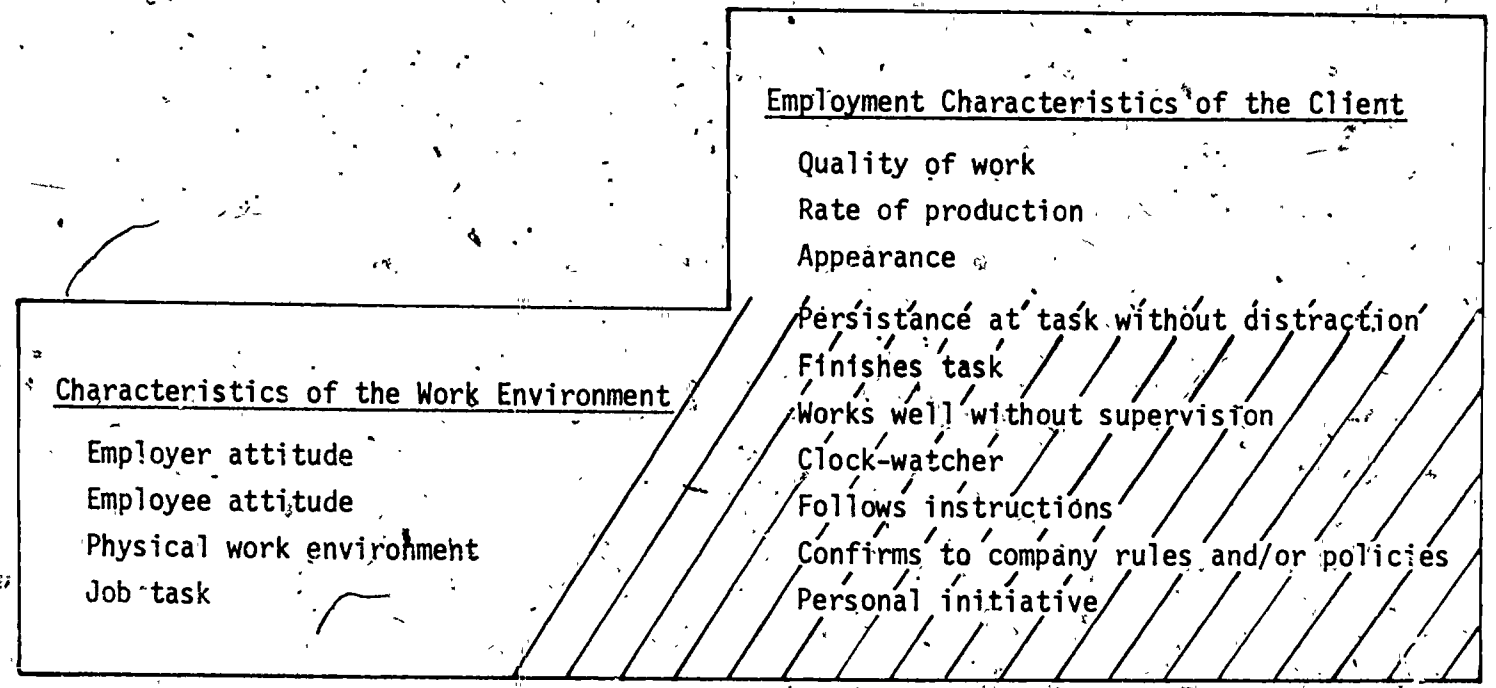
Employment Characteristics of the Client
Quality of work
Rate of production
Appearance
Persistance at task without distraction
Finishes task
Works well without supervision
Clock-watcher
Follows instructions
Confirms to company rules and/or policies
Personal initiative
Characteristics of the Work Environment
Employer attitude
Employee attitude
Physical work environment
Job task

Figure 2

Figure 3
Analysis of 157 Behavioral Assets and Liabilities Associated with the Success or Non-Success of Retarded Employees

Category	% of Total Resp.	Examples of Behavioral Statements	Chi Square Distribution	Suc	Non-Suc	Level of Significance
A. Initiative and Attitude Toward Job (N=43)	29%	1. Asks what to do next 2. Goes right to work 3. Stands around unless asked to work 4. Piddles	Assets Liab.	21 4	12 6	N.S.
B. Attention, Acquisition, Retention (N=25)	17%	1. Willing to learn 2. Needs to catch on faster 3. Attentive to task 4. Thinks too slow	Assets Liab.	4 6	2 13	N.S.
C. Personality, Personal Habits, Mannerisms (N=51)	35%	1. Willing to please 2. Too friendly 3. Pleasant disposition 4. Too slow, no energy	Assets Liab.	20 16	10 15	N.S.
D. Job Skills (N=15)	10%	1. Able to do job right 2. Cannot count 3. Cannot do anything right 4. Mechanical ability	Assets Liab.	6 4	0 5	.05
E. Punctuality (N=10)	7%	1. Prompt 2. Not dependable, timewise 3. Failed to show up 4. Here every day	Assets Liab.	6 2	2 0	N.S.
F. Physical Factors (N=3)	2%	1. Teeth (bad) 2. No strength, no muscles 3. Awkward	Assets Liab.	0 2	0 1	N.S.
			TOTAL	57 34	26 40	.01

Two important findings resulted from this investigation:

1. Statements related to job skills are predictive of employment success.
2. Employers in an unstructured situation tend to talk about personality (Cat. C 35%) and attitudinal (Cat. A 29%) variables even though they are not critical to later judgment of success or non-success.

Production Rate as a Variable of Job Success

Study #4

All of our research up to this point has suggested areas relating to job skills as being very important for job success, a finding so obvious to most of us that it seems almost inconsequential. It should be emphasized though that past research or literature relating to employability of the retarded in almost all cases ignores the area of job skills and emphasizes the importance of personality and attitudinal variables. While the author admits the importance of the personality and attitude, the results of the current research make them suspect as far as the predictive aspects of employment are concerned. And too, they are extremely illusive in terms of current tools of measurement.

Study #4 further investigates the importance of job performance. A description of this study as reported elsewhere (Chaffin, 1969) is included here on the following pages.

JERRY D. CHAFFIN

Production Rate as a Variable in the Job Success or Failure of Educable Mentally Retarded Adolescents

Abstract: This study investigated the importance of production rate of mentally retarded clients as an influencing factor in their employment success. In Experiment I, the production rates of 10 pairs of clients (10 successful and 10 unsuccessful) were compared. Experiment II involved increasing the production rate of previously unsuccessful clients and decreasing the production rate of successful clients. The results of this study suggest that production rate was important to successful employment and was sensitive to modification procedures.

THE production rate or actual working ability of the mentally retarded is a factor largely neglected by researchers concerned with the employability of the mentally retarded (Windle, 1962). Instead, researchers have focused on various social or personality variables with resulting agreement that these factors play an important role in the employability of the mentally retarded.

The accurate assessment of personality factors is difficult and their relationship to job success is hard to substantiate. Windle (1962) suggested that explanations of behavior in terms of personality are frequently used to "disguise a lack of knowledge [p. 96]," and Patterson (1964) noted in his review of vocational assessment methods for the retarded that "neither objective nor projective personality tests appear to be useful in evaluation or prediction [of employability] [p. 142]."

Several investigators have observed that certain inappropriate social behaviors adversely affect the retarded individual's production. In a workshop experiment by Loos and Tizard (1955) the subjects' output was observed to be low because "too little time was spent ... in work and too much time in talking, singing, looking at comics and doing nothing [p. 401]." Gorton (1966) noticed the differential effects of social interaction on production in the subjects he studied. Although the observations were not quantified, Gorton suggested that the more complex the social interaction and the more difficult the task, the greater would be the effect on production. Using operant techniques, Lent (1965) reinforced only appropriate social behavior and observed significant increases in the subjects' production rates. No studies were found dealing with the production rate of mentally retarded workers in a competitive work setting.

The purpose of this investigation was to study one variable: production rate and its influence on employers' judgment regarding the success or failure of retarded adolescent workers. More specifically, the questions being considered were: (a) Do retarded workers who are judged successful by their employer have a higher production rate than retarded workers who are judged unsuccess-

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ful in the same job? (b) Will a formerly successful worker be judged as unsuccessful if his production rate decreases significantly, and conversely? (c) Will a formerly unsuccessful worker be judged as successful if his production rate increases significantly?

Method—Experiment I

All students who were enrolled in the Kansas Special Education and Vocational Rehabilitation Project (Chaffin, Haring, & Smith, 1967) were considered as possible subjects for this study. The project provided work study experiences for educable retarded high school students in two Kansas school districts. At the time of the investigation, 58 individuals were enrolled in the program. Each of these students was prejudged by the project staff as being probably successful or probably unsuccessful in their next work assignment. This judgment was based on the student's work record and other information from his case file including school records, social history, and psychological and medical data. Categorizing the students in this way resulted in 35 students being classified as "probably successful" and 23 being classified as "probably unsuccessful." Out of the total population, 10 pairs of students were selected by the staff as subjects for the first experiment. Each of the 10 pairs consisted of one successful and one unsuccessful student. Subjects in each pair were matched on previous number of work placements, IQ scores, and chronological age. Each pair was then assigned to a work placement in the community, and the employers were asked to judge the students as successful or unsuccessful following 2 weeks of work. In one case, an employer judged a "probably unsuccessful" student as successful. This resulted in the placement of another "probably unsuccessful" subject on this job who was subsequently judged unsuccessful by the employer. Thus, each of the 10 pairs finally selected for comparison consisted of one successful and one unsuccessful subject as judged by their employer after 2 weeks. Each pair worked at the same job with the same supervisor in the same work environment, thus controlling the variables of work environment, task complexity, and attitude of supervisor within pairs, but not between pairs, since each pair worked at a different job. Eight employers supplied the 10 jobs which included packing veterinary supplies, folding towels and surgical gowns, preparing and wrapping sandwiches, sacking and weighing candy, assembling boxes, soldering small electronic parts, and packing and storing milk containers. Each subject worked 2 hours daily for 2 weeks. Employers who did not routinely keep individual production records were asked to do so and record forms were provided.

Following the subject's last day of work, an interview was held with each employer and a work evaluation form completed. During the interview, the employer was asked if he would hire this student as he would the average applicant, provided the job was available. This was the criterion question for the final placement of the subject into one of the two groups. If employers responded in the affirmative, the student was considered successful, and if the employer responded negatively, the student was considered unsuccessful.

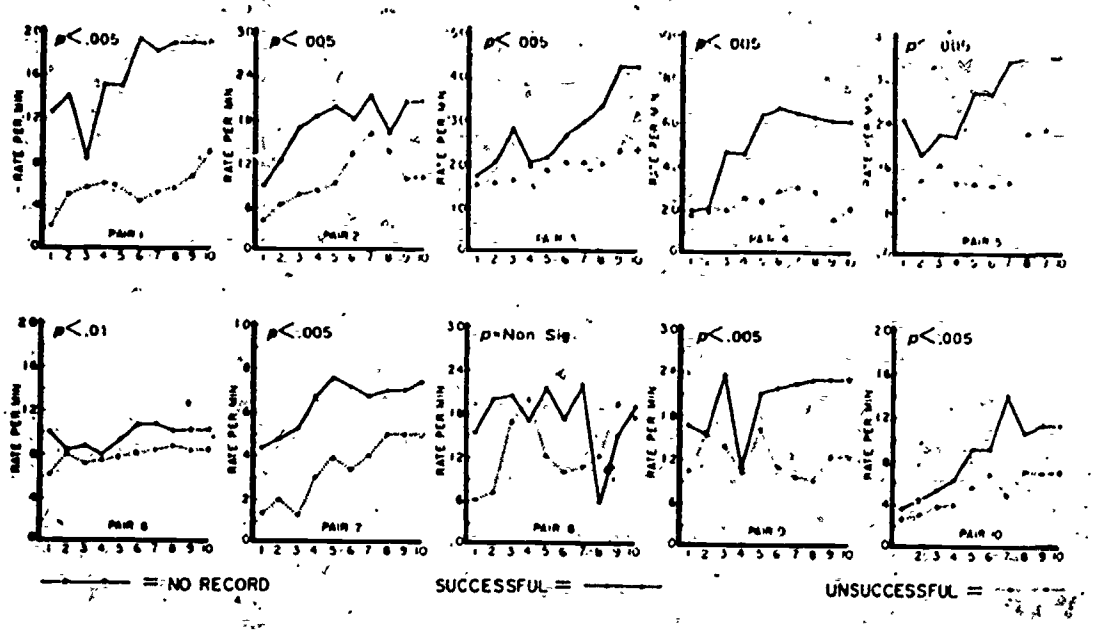
Results—Experiment I

The daily production rate of each of the 10 pairs of students was computed and the differences statistically compared with the Wilcoxen Signed Rank Test (Siegel, 1956). An analysis of the resulting scores revealed that in every case the subject judged successful by his employer had a higher production rate than the unsuccessful member of the pair. This difference was statistically significant at or beyond the .01 level in 9 of the 10 cases.

Figure 1 compares the daily production rate of the successful and unsuccessful worker for each pair of subjects in Experiment I. In one case (pair 8) there was no significant difference between the successful and unsuccessful subjects. This was due to a minor hand injury of the successful subject on the eighth day, which resulted in a significant decrease in his performance.

The results of Experiment I suggest a definite positive relationship between the individual's production rate and the employer's judgment of job success or nonsuccess. This experiment does not establish a cause and

FIGURE 1. Daily production rate of 10 pairs of subjects in Experiment I.



effect relationship, however, since the successful workers, in addition to working at a higher rate, may have been neater, more appropriately dressed, or may have possessed more pleasing personalities or better attitudes toward work than their unsuccessful counterparts. If, after the production rates of successful and unsuccessful subjects are reversed, the employer's judgment is reversed, it should be acceptable to assume that the production rate of the rearded workers influenced the employer's judgment of their work. This is the strategy that comprised Experiment II.

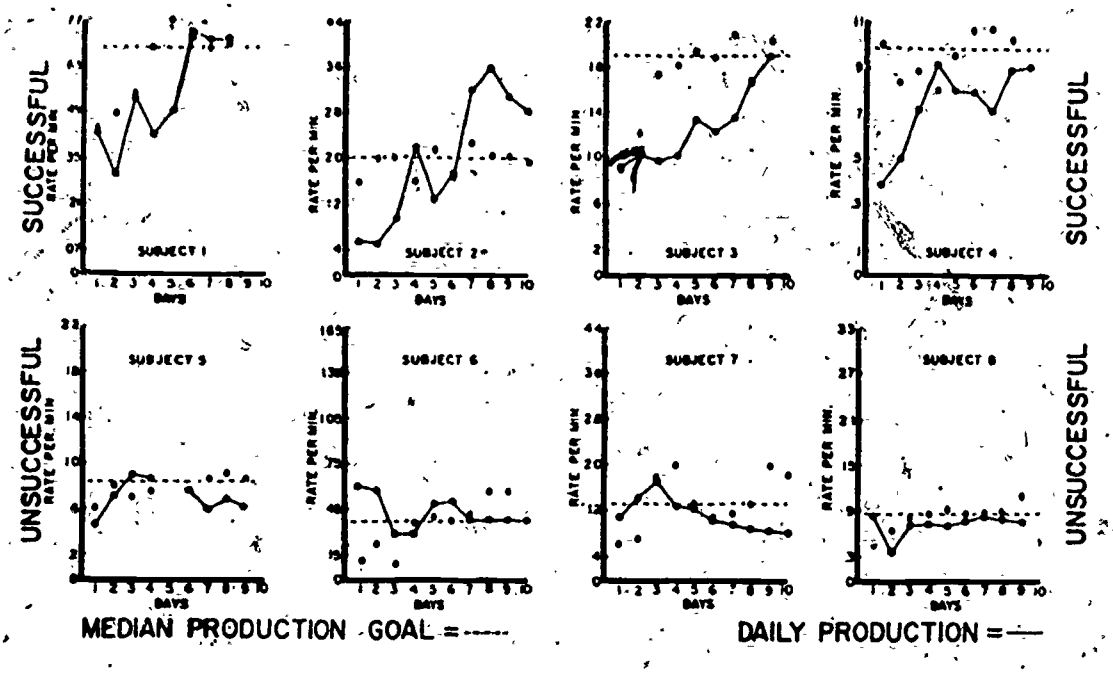
Method—Experiment II

The subjects for Experiment II consisted of four successful and four unsuccessful workers, randomly selected from the subjects who had participated in the first experiment. Four employers were selected similarly.

One successful and one unsuccessful student were placed with each of the four employers and assigned a production goal based on the production records obtained in the previous experiment. Modification procedures were implemented to increase the work rate of unsuccessful subjects to a production goal comparable to that of a previously successful subject in that job and decrease the work rate of successful subjects to a rate comparable to previously unsuccessful subjects. The prediction was that successful modification would result in a corresponding change in the subject's employment rating. As in the first experiment, each subject worked 2 hours daily for 2 weeks and the final judgment of success or nonsuccess was made by the employer.

Specific procedures for modifying the individual work behavior of subjects were relatively imprecise. These procedures consisted mainly of individually informing the subjects of their production goals each day and relating the attainment of this goal with social approval or disapproval. In a few cases other consequences were necessary. Driving the investigator's car and playing pool with the rehabilitation counselor were reinforcing consequences in two cases where social (verbal) consequences were ineffective. These imprecise procedures were considered permissible since the goal of this study was *not* to demonstrate exact behavioral control or to know precisely the effect of a given variable. Rather, the concern was to modify the subject's pro-

FIGURE 2. Daily production rate of successful and unsuccessful subjects in Experiment II.



duction rate and to observe the *effect* of this modification on the employer's judgment of the subject as a successful or unsuccessful worker.

Results—Experiment II

The daily production rates of subjects in Experiment II are presented in Figure 2 along with the daily assigned goal. Subjects one through four had been judged as unsuccessful in Experiment I. In this experiment their production rate increased and they were subsequently judged successful by their employer. Two of these subjects (S-1 and S-2) clearly attained their production goal while two others did not.

One of these did not reach his assigned goal, but his production rate was significantly greater (.005 and .001) than two unsuccessful students in the same job. Therefore, even though this subject's performance was below the specified criteria for this experiment, the possibility remains that production rate was the influencing factor in the employer's judgment of success. The other subject (S-4) whose performance was short of his assigned goal also had a sighificantly higher production rate (.005) than one of the unsuccessful subjects performing the same job, but his production proved somewhat lower than the rate of another. However, the employer said S-4 was "the fastest" of all the subjects he had employed. Production data did not support the employer's statement, but the subject may have appeared to be working fast and perhaps the employer's judgment was based on this impression.

Subjects five through eight had all been judged as successful workers in experiment I. The target behavior for each of these subjects was a low production goal comparable to the subject in Experiment I who had been unsuccessful in the same job. In all four cases, the previously successful subjects achieved at or below their lowered production goals and were judged by the employer as unsuccessful. A reasonable conclusion seems to be that the employer's judgment was influenced by the lower production rate.

Discussion: Limitations

Although the results of this research are such that some broad applications can be made, a number of factors surrounding this investigation and its primary purpose should be discussed.

First, the research was carried out with a relatively small number of subjects. The first experiment compared the production rate of 10 successful and 10 unsuccessful subjects. The second attempted to reverse the employment rating of 4 successful and 4 unsuccessful subjects from the previous experiment by increasing or decreasing their production rate. This strategy would seem to reduce the necessity of having a large experimental population, yet allow some generalization of the results, although it should be replicated with other subjects for wider generalization.

A second limitation is the fact that the jobs the subjects performed in this study probably were not representative of jobs most frequently performed by mentally retarded individuals. However, to explore the influence of production rate on the employers' judgments of success or failure, it was necessary to place students in jobs where some discrete measure of their production was available. Future investigation may lead to the formulation of creative ways of measuring an individual's production on nearly every type of job, thus providing more information regarding the importance of production rate to employment success.

Another limitation may be that the subjects worked for short periods (about 2 hours) during the day for only 2 weeks. Employers may not become fully aware of an individual's strengths and limitations as an employee in this length of time. Also, such factors as perseverance on a task or tolerance for work over a period of time are not available for assessment during this brief work period. In addition, the effect of fatigue on production cannot be assumed to be present in this study. The short work period might be construed as a limiting aspect of this study, but it is also likely that when differences in production show up during such brief time lengths, these differences would in all probability be magnified if the period of work were extended.

The previous limitations represent reasonable objections to the results and conclusions of the present study, but they are all limitations minimized somewhat by the modification aspect of this investigation. The fact that the employers' judgments were reversed by altering the production rate of certain subjects in the study suggests the existence of a cause and effect relationship between employer judgment and a student production rate on the job, which was the primary purpose of this investigation.

Probably the most limiting factor in this study was that the employers were required to keep their own production records on the students. Thus, an employer's judgment of success or nonsuccess of the subject may have been influenced by his knowledge of their production. This procedure was routine for only two of the businesses used in the study. Though attempts were made to deemphasize the importance of the production record, it was necessary to check periodically with the employer to insure that accurate records were being maintained. There were no particular incidents which led the investigator to believe that the participating employers relied on the production records for evaluation. In no case did the employers examine the production records before making their decision of success or nonsuccess about the student employee, nor did they make frequent references to speed of work during the investigation. Data on one subject (S-4, Experiment II) suggested that the employer was not aware of production differences when making his judgment. In spite of these observations, knowledge of production can be cited as a possible contaminating variable in this study. This variable might be controlled in future research through automatic recording equipment.

Conclusions

Despite some limitations in this study, a number of findings appear significant. First is the conclusion that production rate does influence employers' ratings of retarded workers. If the importance of production rate is confirmed in future studies, the rehabilitation worker might use this measure as an indication of a client's employment status. By noting the variation in the performance of clients, it may be possible to anticipate and thus prevent problems from arising that might later be interpreted as personality or social problems.

Another important finding is the sensitivity

of production rate as a measure of work. A variation of daily work performance (see Figures 1 and 2) of the subjects in this study occurred despite the fact that the variables of task complexity, supervision, and other environmental factors were experimentally controlled.

Since these variables were controlled, other variables within the work environment or factors within the person himself obviously exert their effects on production rate. While some of the differences in daily production may be a function of learning, most of the variance probably cannot be accounted for by it.

Finally, it is significant that production rate was modified in this study with relatively imprecise procedures. The initial procedures of modification involved clarifying to the student employee what was expected of him in terms of production. Next, if necessary, the job task was analyzed and suggestions made for improving his performance. Social approval or disapproval was available, depending upon the individual's production rate in relation to his assigned goal. When other reinforcers were used, the procedures were still relatively unsystematic. The client was simply told that a desired reinforcer was contingent on attainment of his production goal, and in nearly every case the behavior was modified to a measurable degree.

The results of this research suggest that production rate is a very important factor in the success or failure of retarded workers. Although the attention of other investigators has focused on personality and social variables, the old fashioned concept of "a day's work for a day's pay" seems to be important in the vocational training of the mentally retarded. Training should be carried out by clarifying exactly what is expected of the client in terms of job duties, production standards, and quality of work. Frequent checks regarding the difference between the client's present performance and his required performance then provide the structure for modification procedures.

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Sample #1

EMPLOYMENT EVALUATION AND TRAINING PROJECT
VOCATIONAL ADJUSTMENT TRAINING
WORK REPORT
Employer's Evaluation

VRP #1
Form 06

Trainee's Name _____ V.R.P. Job No. _____

Employer's Name _____ Address _____

Date Started _____ Date Completed _____ Time on Job _____

Job Title _____ Supervisor _____

	FACTORS	AVERAGE EMPLOYEE Less Than	Same As	More Than	Comments
GROUP I PERSONALITY & SOCIAL ADJUSTMENT	Self-confidence				
	Cheerful				
	Cooperates with supervisor				
	Cooperates with other employees				
	Respects supervisor				
	Minds own business				
	Accepts criticism				
	Mixes socially with other employees				
	Neat and clean				
	Other				
GROUP II WORK HABITS & EFFICIENCY	On time				
	Safety conscious				
	Careful with materials and property				
	Completes work on time				
	Quality of work				
	Understands work				
	Shows initiative				
	Other				

Sample #1 (cont.)

WORK REPORT
Employer's Evaluation

VRP #1
Form 06, Page 2

Trainee's Name _____ V.R.P. Job No. _____

FACTORS	AVERAGE EMPLOYEE Less Than	Same As	More Than	Comments
Group I--Personality and social adjustment				
Group II--Work habits and efficiency				

GROUP III GENERAL RATING

Would you be as willing to hire this individual as you would your average applicant, if a job were available?

YES _____ PROBABLY _____ PROBABLY NOT _____ NO _____

If above answer is "PROBABLY NOT" or "NO," please answer the following:

Would hire IF.....(State conditions): _____

Comments:

Sample #2

Date: _____ VRP #1, Form 6

EMPLOYER EVALUATION AND TRAINING REPORT

Student's name: _____ Job title: _____

Date started: _____ Date completed: _____

Name of business: _____ Employer: _____

Address: _____ Phone: _____

Informant: _____ Position: _____

Interviewer: _____

I. General Inquiry: How has student been getting along? Tell me about employee. (This section is fairly unstructured - should be used as a warm-up period.)

II. a. What do you consider student's strongest asset as regards the job?

b. What do you consider student's biggest liability as regards the job?

Sample #2 (cont.)

III. I would like to ask you a number of questions about the student. Answer yes, yes with reservations, or no.

___ 1. Is the student's appearance appropriate for the job?

___ 2. When required, can the student stay at a job for a long period of time without being distracted?

___ 3. Does the student work well without supervision?

___ 4. Does the quality of the student's work meet employer's standard for the average worker?

___ 5. Is the student a clock watcher?

___ 6. Does the student's rate of production meet employer's standard for the average worker?

___ 7. Is the student physically able to do the work?

___ 8. Is the student mentally able to do the work?

___ 9. Does the student follow instructions?

___ 10. Does the student know and follow the rules and/or policies of your company?

___ 11. Does the student frequently seek assistance for minor work problems which may have been solved without help?

___ 12. Has the student mentioned that he does not like the job?

___ 13. Can the student be interrupted and still maintain efficiency?

___ 14. Is the student easy to get along with?

___ 15. Does the student exhibit personal initiative? Example either case.

___ 16. Does the student seem to listen when receiving instructions?

___ 17. Does the student frequently interrupt inappropriately?

___ 18. Does the student respond ~~well~~ to criticism?

___ 19. After the student completes a task, does he:
(a) find something appropriate to do
(b) ask for further instructions
(c) wait until told

IV. Would you be willing to hire this individual as you would the average applicant if the job were available?

Yes _____ Qualified yes _____ No _____

THE EMPLOYEE Q-SORT

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"Real" Sort

In front of you is a board with twenty-five squares on it. And here (show employer) are twenty-five cards with statements about (client's name). The squares on the board have different titles. The square at the extreme left is for the characteristic that is "most like (client's name)," the next "very much like him," the third "like him," and the fourth "a little like (client's name)." The fifth column is for those characteristics you are undecided about. The remaining columns are for characteristits that are (point to each as you say them) "a little unlike him," "unlike him," "very much unlike him," and "most unlike (client's name)."

Now, as you read each of the statements I would like for you to place each one on the board in the position that best describes the client. There is only one card for each square. You may change the positions of the cards on squares as often as you like. If you have any questions, please ask.

"Ideal" Sort

Now we are going to clear the board and start all over again. This time I would like for you to place the cards on the squares that best describe how you would like (client's name) to be. Do you have any questions?

Sample #1

Q SORT RECORD FORM

Client's Name: _____ Sex: _____ Date: _____

School: _____ Teacher: _____ Grade: _____ Age: _____

Employer*: _____ Relationship to Client: _____

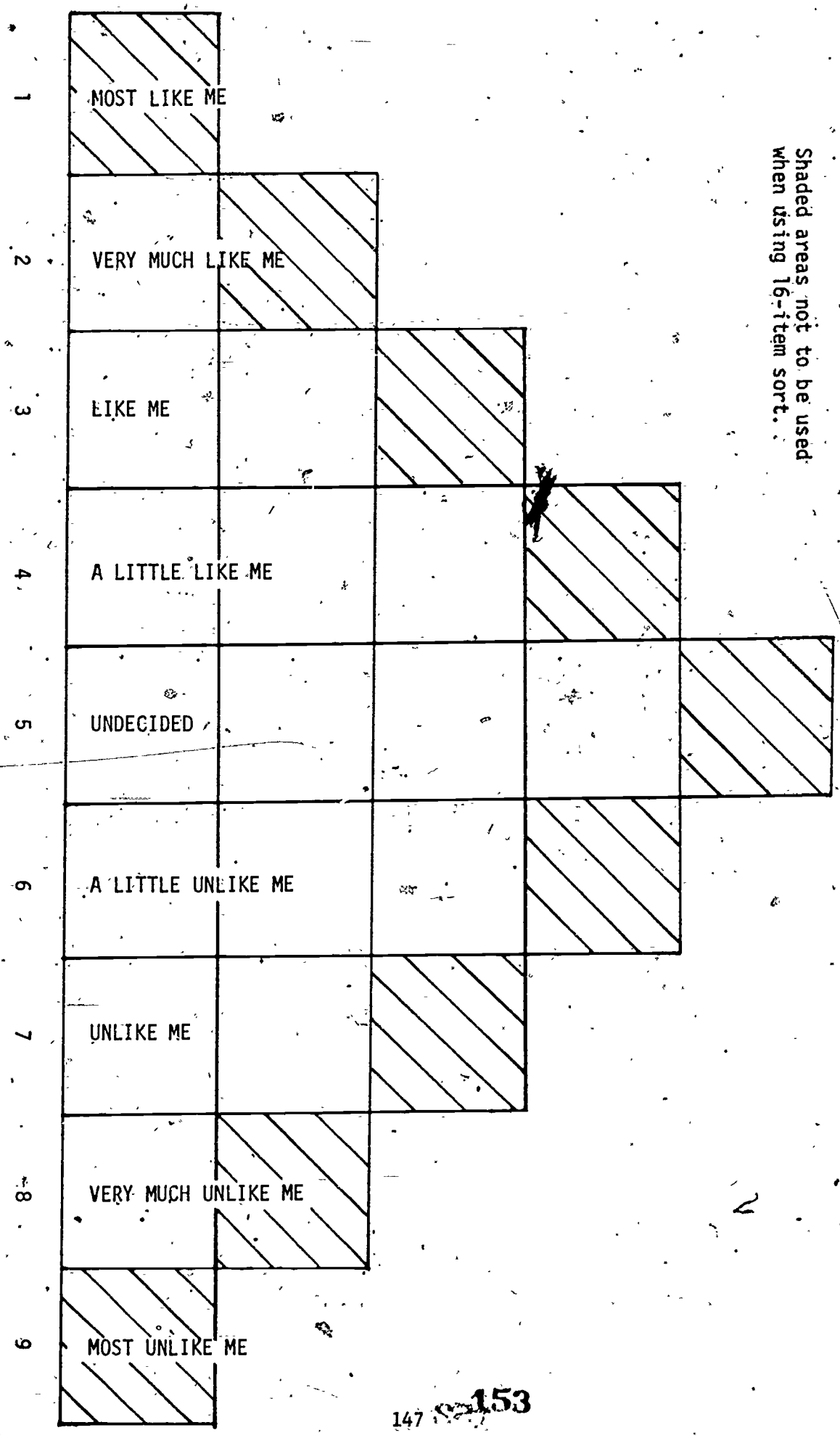
Name of Business or Work Station: _____

Address: _____ Phone: _____

Card No.	Sort 1 "Real"	Sort 2 "Ideal"	D	D^2
1. Clothing always appropriate				
2. Sticks to job task				
3. Works as fast as other employees				
4. Catches on to job tasks quickly				
5. Gets along well with co-workers				
6. Physically able to do the work				
7. Minds own business				
8. Enjoys the job				
9. Completes work on time				
10. Finds things to do without being told				
11. Asks for work when task completed				
12. Listens to instructions				
13. Knows how to do the job				
14. Is a willing worker				
15. Works independently				
16. Hair is too long				
17. Does poor quality work				
18. Argues with supervisor				
19. Gets upset when criticized				
20. Careless with job tools and materials				
21. Does not follow directions well				
22. Dislikes the job				
23. Is often late				
24. Asks for help often				
25. Talks too much				

$r_s = 1 - \frac{\Sigma D^2}{200}$ $\Sigma =$ [ ]

*This refers to the person who is sorting the child.



Shaded areas not to be used when using 16-item sort.

1 CLOTHING ALWAYS APPROPRIATE	2 STICKS TO JOB TASK	3 WORKS AS FAST AS OTHER EMPLOYEES
4 CATCHES ON TO JOB TASKS QUICKLY	5 GETS ALONG WELL WITH CO-WORKERS	6 PHYSICALLY ABLE TO DO THE WORK
7 MINDS OWN BUSINESS	8 ENJOYS THE JOB	9 COMPLETES WORK ON TIME
10 FINDS THINGS TO DO WITHOUT BEING TOLD	11 ASKS FOR WORK WHEN TASK COMPLETED	12 LISTENS TO INSTRUCTIONS
13 KNOWS HOW TO DO THE JOB	14 IS A WILLING WORKER	15 WORKS INDE-PENDENTLY
16 HAIR IS TOO LONG	17 DOES POOR QUALITY WORK	18 ARGUES WITH SUPERVISOR
19 GETS UPSET WHEN CRITICIZED	20 CARELESS WITH JOB TOOLS AND MATERIALS	21 DOES NOT FOLLOW DIRECTIONS WELL
22 DISLIKES THE JOB	23 IS OFTEN LATE	24 ASKS FOR HELP OFTEN
25 TALKS TOO MUCH	26 IS DISTRACTED EASILY	

STUDENT Q-SORT
(A Modification of Chaffin's Q-Sort)

Raymond E. Morley
Consultant, Secondary Programs
Special Needs Section
Iowa Department of Public Instruction

You must complete two sorts (a "real sort" and an "ideal sort") to determine behaviors you want to change. The teacher or the student can complete the two sorts. It is up to you (the teacher) to determine how you want to use the technique.

"Real Sort" - Directions

In front of you is a board with twenty-five squares on it. And here (show student) are twenty-five cards with statements about people. The squares on the board have different titles. The square at the extreme left is for the characteristic that is "most like you," the next "very much like you," the third "like you" and the fourth "a little like you." The fifth column is for those characteristics that you are undecided about. The remaining columns are for those characteristics that are (point to each as you say them) "a little unlike you," "unlike you," "very much unlike you," and "most unlike you."

Now as you read each of the statements I would like for you to place each one on the board in the position that best describes you. There is only one card for each square. You may change the positions of the cards on the squares as often as you like. If you have any questions, please ask.

"Ideal Sort" - Directions

Now we are going to clear the board and start all over again. This time I would like for you to place the cards on the squares that best describe how you would like to be. Do you have any questions?

When the student completes a sort you must record the placement of each statement in relation to the square it was placed in. Since each column for the squares have been numbered you give each statement that numerical value. In this case statements placed in the squares over "very much like me" would receive the numerical value of "2"; those over "undecided" would receive the numerical value of "5"; etc.

Records must be kept on the "real sort" and on the "ideal sort." When both have been recorded, you then find the difference between the two scores for each statement. This could be a positive number or a negative number. Once the difference is found you square it or multiply it by itself to get D^2.

In terms of priority you can chose those behavioral statements which show the largest D^2 to work on in terms of a behavior modification program.

You can get an over-all view of how well the student sees himself by using the following formula:

$$r = 1 - \frac{6\ (\Sigma D^2)}{n\ (n^2-1)}$$

This formula is actually a correlation of how close the student ranked himself on the real sort as compared to the ideal sort. If you get a positive number above .65, the correlation is very high. If you get a positive number below .65 or a negative number, the correlation is poor. This indicates work will have to be done to modify the behaviors as indicated by the D^2's.

r - stands for correlation in the formula. Correlation is a means of telling how closely things are related. "r" never goes above +1 or below -1.

1 - is a constant in the formula. It never changes.

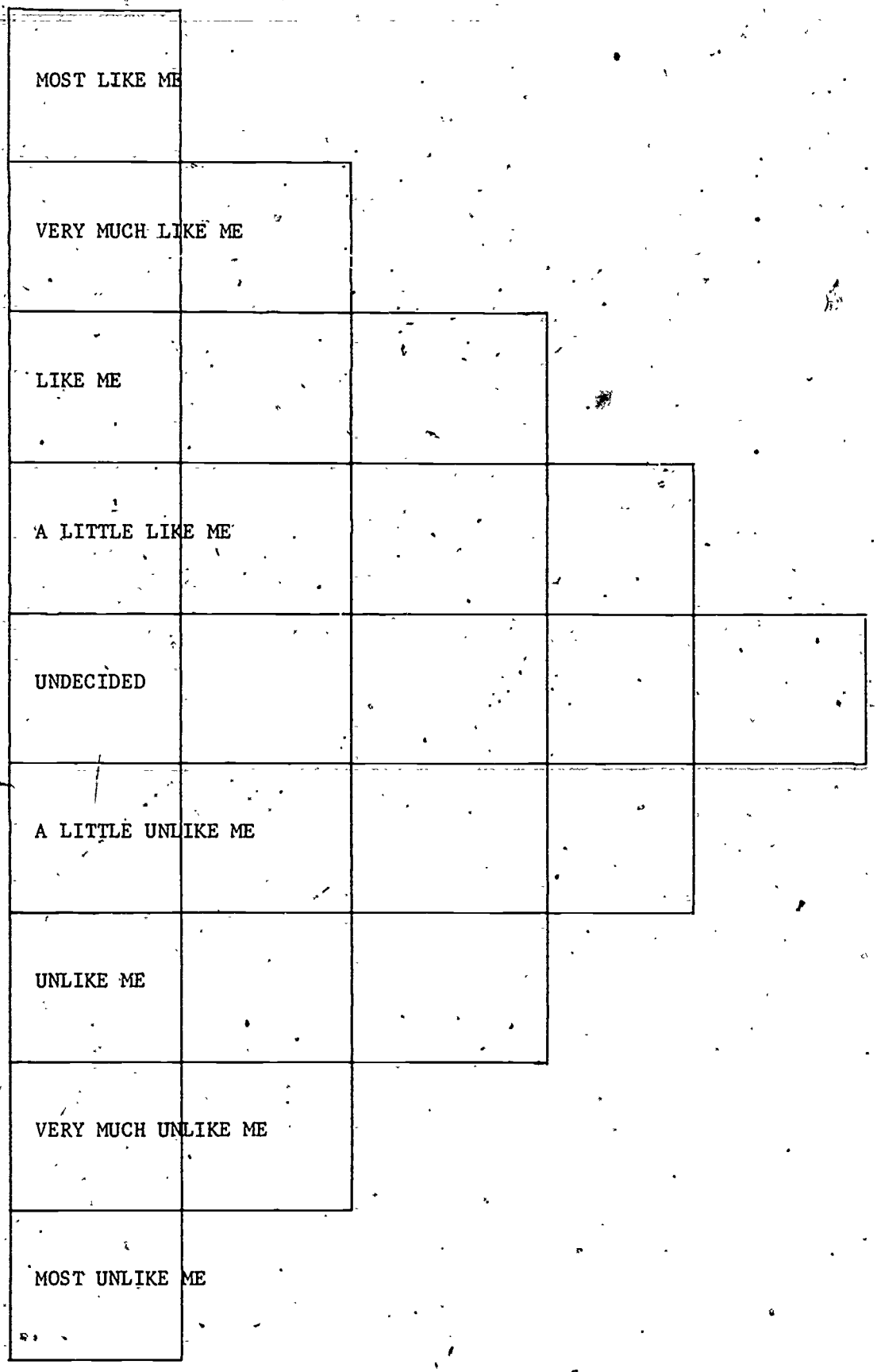
6 - is a constant in the formula. You always multiply the sum of the D^2 by 6.

ΣD^2 - This is the sum of the D^2's. You add up all of the D^2's and get a total. This is ΣD^2.

n - is the total number of statements you use. In this case the n = 16.

n^2 - is the n multiplied by itself. In this case $n^2 = 16^2$ or 256.

Sample #1



Q SORT FORM

Sample #2

You must cut these squares out so they can be placed on the Q Sort Form.

Clothing is always neat and clean	Enjoys working	Willing to cooperate	Is always late	Not very strong
Catches on to things fast	Always completes work on time	Argues with supervisors	Talks too much	Cannot stand being responsible
Gets along well with others	Finds things to do without being told	Does poor quality work	Asks for help often	Gets things done the right way
Strong enough to do most things	Asks for help when needed	Gets upset when criticized	Dislikes being around people	Can take a joke
Minds own business	Enjoys being responsible	Does not follow directions well	Dislikes working	Always follows the rules

Sample #3

Q SORT RECORD FORM

Student's Name_____

Sex_____ Grade_____ Age_____

Address_____

Phone_____

	Real Sort	Ideal Sort	D	D^2
1. Clothing is always neat and clean.				
2. Catches on to things fast.				
3. Gets along well with others				
4. Strong enough to do most things				
5. Minds own business				
6. Enjoys working				
7. Always completes work on time				
8. Finds things to do without being told				
9. Asks for help when needed				
10. Enjoys being responsible				
11. Willing to Cooperate				
12. Argues with supervisors				
13. Does poor quality work				
14. Gets upset when critized				
15. Does not follow directions well				

Sample #4 (cont.)

	Real Sort	Ideal Sort	D	D^2
16. Is always late				
17. Talks too much				
18. Asks for help often				
19. Dislikes being around people				
20. Dislikes working				
21. Not very strong				
22. Cannot stand being responsible				
23. Gets things done the right way				
24. Can take a joke				
25. Always follows the rules				

COMBINING INFORMATION AND PROCEDURES RELATED TO RENDERING STUDENTS EMPLOYABLE

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Consultant, Secondary Programs
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Iowa Department of Public Instruction

The purpose of this meeting as I understood it was to discuss relevant information and procedures we can use in the public school to enhance our efforts in helping the mentally retarded become well oriented to the working world and to himself or themselves.

Our objectives in this area are:

A. to render individuals capable of work and

B. to assist individuals in developing a value system which makes them want to be productive workers.

In relation to both of these objectives we have to concern ourselves with the information and procedures we can use to accomplish the objectives.

The information we need to be concerned with relates to the interests, abilities and behavior of individuals which deem them successful or unsuccessful workers. The procedures we have to be concerned with are those that help us find out the information and aid in the use of that information.

I think one ground rule should be kept in mind at all times when dealing with students we have labeled "mentally retarded." For the most part, authorities agree that mental retardation is a social phenomena. A child with an IQ of 95 may be more handicapped in a highly complex city than one with an IQ of 65 in a back-country settle-

ment (Robinson & Robinson, 1965). Epidemiological data from one community may not necessarily be applicable to another, even if they have many similar characteristics (Wolfensburger, 1967). Likewise, in interpreting data that are related to work adjustment there is no universal formula. Certain pieces can be different. This means that each individual who embarks upon coordination of a work assessment program "must become very familiar with all aspects of behavior which have influence on work" and "realize how to use data in order to sift out information and make proper decisions."

COMBINING INFORMATION AND PROCEDURES - A MODIFIED REVIEW OF THE BECKER, BROLIN, CHAFFIN, KREHBEIL AND LAWRY PAPERS*

Studies reporting on the relationship between intelligence and employment success have shown varied results. Some investigations, Abel, 1940; Baller, 1936; Collman & Newlyn, 1956; Jackson & Butler, 1963; and Phelps, 1956, found intelligence to be significantly related to successful employment while others, Baer, 1961; Bobroff, 1956; Cowman & Goldman, 1959; Hartzler, 1951; Kolstoe, 1961; Madison, 1964; Voelker, 1963; and Shafter, 1957, found IQ to be a non-significant factor. Since we must concern ourselves with IQ, we should not misinterpret these studies. Few of these investigators have concerned themselves with IQ as it relates to complex tasks within jobs. We should gleam from practical experience that IQ can interfere with employability if job selection is not carefully done and based on the complexity of tasks involved. If we are to gleam anything

* All underlined sentences are those of the author of this summary. Sentences that are not underlined are those of the indicated authors of the original papers delivered during the conference.

from the studies Chaffin indicated, it should merely be that "perhaps" the opportunity for placement would be greater as IQ increases. Even this conclusion, however, should be looked upon skeptically. Since "most jobs have not been analyzed by IQ level," an IQ of 50 to 80 could indicate a maximum of learning potential for performing in thousands of occupations. This must be explored. It can be done by coordinators. It can be completed by utilizing job analysis techniques.

Studies on chronological age as it relates to employability have been equivocal. Kolstoe, 1961, found that the mean age of employed clients was slightly less than the mean age of unemployed clients whereas others, Derro, 1965; Hartzler, 1951, have found that older clients were more employable. Neff, 1959, and Shafter, 1957, found no significant relationship between age and employability. The age groups of these studies have varied. There seems to be an indication that age could be a detriment to employability in younger age groups. This only means that younger groups tend to change jobs more frequently than older workers. Job change, therefore, can be an "expected" phenomena during the initial steps in finding the most desired and beneficial job. Coordinators should concern themselves with it but not become disturbed because of it. Work sampling, as discussed in this workshop, can be used to allow students to explore themselves far before they enter the real-work world. This may reduce chronic job bouncing in young groups.

Some investigators of school achievement as it relates to employability, Cowman & Goldman, 1959; Deno, 1965; Green, 1945; Madison, 1946; and Shafter, 1957, have found no significant relationship. Others, Voelker, 1963; Kolstoe, 1961; Erickson, 1966, have found certain factors

of achievement to be related to employability such as math and reading.

Edgerton, 1967, found that the mentally retarded learn skills somewhere other than in school or are helped with difficult tasks related to academics by people in the community; not teachers. This is part of the reason why the mentally retarded can be successful in community socialization, as well as work. In summary, evidence seems to indicate that achievement is necessary. However, achievement is important only as it relates to specific situations. This means that not all students need to be proficient in math or reading beyond the fourth grade level, some cannot be. Academics should be only one area of learning that we intend to upgrade.

The influence of the family has been found to be significantly related to employment, Jackson & Butler, 1963; Voelker, 1963; Neff, 1959; and Madison, 1964. One factor that is most important is: that support is given to the individual to work and to continue working. It appears that the job of teachers and coordinators is to encourage the importance of family support, as well as support students.

Strong support is in evidence for personality as being related to employment success, Bronner, 1933; Gunzburg, 1958; Hay, 1942; Whitcomb, 1945; Shafter, 1957; Abel, 1940; Deno, 1965; Thomas, 1965. Specific personality characeristics mentioned are:

(a) emotional stability
(b) gregariousness
(c) obedience
(d) truthfulness
(e) ambition
(f) self respect
(g) motivation
(h) attitudes
(i) social judgment

Research supports that a subjective interpretation of personality can be a good predictor of employability, Deno, 1965; Voelker, 1963;

Warren, 1961. Subjective interpretation, however, is poor when an instructional program needs to be translated to aid students in work adjustment. Chaffin's ideas on the Q-Sort can be experimented with by coordinators to try to derive an objective way of directing behavior. There is no doubt we need something like this. Chaffin's work could be a starting point for the coordinator.

Aptitude has not been strongly supported as an aspect related to the employability of the mentally retarded, Ghiselli & Brown, 1951. Three factors are related to this: (a) the tests that have been constructed are not entirely applicable with this population (b) they are not performance oriented and (c) they do not match the patterns of motion and skills that characterize industrial jobs.

It is readily apparent that aptitude tests do not measure the types of abilities required in training for specific jobs. The emphasis is on predicting a trainee's potential on a wide variety of jobs by testing his ability on a smaller number of aptitudes supposedly required for the jobs. If aptitude data is going to be used, it should be used carefully. It should not be used as IQ has been used. In other words, it should not be the sole criterion you use in placing students and directing them toward a career goal. Brolin's suggestion in this area follows this line of thinking. He proposes using it as one bit of information in the midst of many.

Drewes, 1961, conducted a study which supports that performance, ability and dexterity had the highest predictive validity of job success. This emphasis was on simulation activities related to the job as compared to standardized instruments on dexterity and a totally

mismatched test. Simulated activity was the best predictor. It was concluded that instead of concentrating on macro-units of overall performance it is profitable to divide the job into micro-units and develop a means of predicting performance on these micro-units. In our case, micro-units can be work samples. Work samples will give us a means of activity in the classroom which relates directly to the work world. The initial means of setting up work samples is job analysis.

Generally speaking, we can say that interest is closely correlated with job performance. Tests to determine the interests of the mentally retarded have met with mixed success--perhaps equivocal. Even though instruments have been structured to tap the unskilled and semi-skilled job range, Clark, 1955; Long, 1952, they have not proven to be totally successful with the EMR.

Long, 1952, has pointed out that the Kuder performance record and the strong vocational interest inventory focus in on specific jobs and occupational areas that the lower ability job applicant is not familiar with. The results are characteristically invalid. Picture tests such as the vocational appreciation test, Amons, Butler & Herzig, 1949, the picture interest inventory, Weingarten, 1958, and the Geist picture interest inventory, Geist, 1964, have circumvented reading requirements but at the same time they also have included areas of employment which the educable mentally retarded is not familiar with because of their technical level, Becker, 1971.

Some researchers have developed pictorial tests whose occupational range is most realistic for educable mentally retarded. These are: the picture inventory of semi-skilled jobs, Urich 1960; the vocational

picture interest inventory, Becker, 1967; and the vocational picture interest and sophistication assessment, Parnicky, Kahn & Burdett, 1968.

In review of the literature, we can be assured that interest is a critical variable in work success, Abel, 1940; Cohen, 1960; Hartzler, 1951; Michol-Smith, 1950; Super, 1962; Parnicky, 1965. In many instances it becomes the over-riding factor irregardless of skill, ability and social grace or interaction. It must not be neglected when we become engrossed in the problems we encounter through coordinating work placement. As you probably already know, interest determination is one of the most complex areas to pinpoint. To some extent, then, it should be objectified through tests to help protect you against misinterpretations and consequently, false guidance which can cause you a great deal of problems.

Neff, 1968, has stated that perhaps "the site of the vocational evaluator ought to be in the work place itself." The actual job tryout is one of the best methods of making any real predictions about the student's vocational potential. But, if the coordinator has done his job the student should be ready for the experience and it should be most appropriate. It could be helpful if the evaluation up to that point was sufficient to help the student adjust most readily.

OVERALL CONCLUSIONS AND ADDITIONAL INFORMATION

1. All variables such as intelligence, age, achievement, family relations, personality, and aptitude and motoric functions have a bearing on the employment of the retarded.

2. The most significant variables are factors of personality

family relations, motoric functions and interest directly related to performance on the job.

3. Ability to do the job and get along with co-workers seem to be the two overall riding principles important for specific jobs.

It seems reasonable that classroom teachers should use the methods of assessment which deal with the most relevant abilities related to employability of the mentally retarded. In review of the information just discussed, I conclude the following:

1. Personality factors and family relations are valid when subjectively determined. Information in this area, however, should be objectified somewhat so appropriate curricular procedures could be flexibly adopted. In terms of the present movement in education behavior modification could be used to change factors that are undesirable and related to employment success.

One method of objectifying personality variables or family relationship variables has been proposed by Jerry Chaffin, Chairman of the Special Education Department at the University of Kansas, in Lawrence. He has proposed using a Q-Sort technique to identify the most pertinent behaviors we should be trying to modify. Under this system we could concern ourselves with modifying behaviors related to employment far before a person is employed in addition to working on them in the employment situation.

Hopefully, by use of a modification of Chaffin's Q-Sort, we can identify personality variables which interfere with employment. As a teacher you can list these and check each student yourself. In addition you can have each student check himself on these. As a result of your findings you can begin modifying inappropriate behavior.

I have prepared a complete packet for you. The packet includes a modification of Chaffin's initial work in this area. Complete directions for use are included. (See chart three - Chaffin)

2. Motoric functions or performance skills are most directly related to work performance. Vocational assessment of work abilities through work samples allows us to concentrate on performance criteria. I think that by using performance techniques you can begin to identify an exceptional child you have neglected to identify for a long time. A child in this sense would be identified as exceptional only with respect to his abilities and skills as they relate to employment - an objective that can be reached by everyone we encounter in EMR classes as well as in regular classes.

Work samples based upon job analysis have proven to be the best predictive measures of job success when used alone. Work samples that are useful for assessment, however, must be based upon job analysis. Job analysis allows the structuring of a work sample based upon actual work requirements. The analysis reveals skills to be mastered and knowledges which are related to carrying out performance skills.

Work samples are real job tasks and are based on job production standards for measuring skills and potential. A work sample may be an actual job administered and observed under standard conditions. It may be a mock-up of a component of a job.. It may be a task made up by the teacher to resemble an actual job.. Some examples of work samples could be the following:

Laundry - pressing
cleaning

Hotel - maid

Painting - scraping
painting

Factory work - assembly
packaging

Food service - cooking
serving

Garment trades - sewing

The use of work samples as an evaluative tool in the classroom hold certain advantages over other techniques: (a) they are more like work and hold student interest (b) the student can see how they are doing in actual work instead of being told (c) the student is allowed to discover requirements, tools, etc., related to work, (d) teachers can observe behavior involved in work, and (e) they can be changed continuously to meet the needs of students with varied interests.

The evaluation results of a work sample should not vary greatly. Industrial standards can be defined by using job analysis. The standards should be the criteria used for evaluation. In every case, the teacher should define what kind of information can be expected from the work sample then carefully observe the student and record observations as behavior occurs.

One realistic way to set up work samples is to progress from simple to complex tasks. This would mean that all tasks connected with a job would be outlined. There may be 50 to 500 tasks depending upon how specific one wants to be. Since all tasks do not have to be represented in a work sample you could choose only those tasks that are most prominent or the most frequently performed by the worker.

A practical format to use in evaluating a student through job samples is outlined on the next page.

WORK SAMPLE EVALUATION

STUDENT John Doe AGE 17 GRADE 12

WORK SAMPLE Mail Sort DATE 12-1-71

STANDARD PERFORMANCE RATING 8 letters per minute - 480 letters per hour - 5 hours

STUDENT RATING 12 letters per minute for 39 minutes - 178 letters per hour - 4 hours

NOTES ON BEHAVIOR DURING WORK (a) coordination poor drops letters a lot-slows speed (b) looked around a great deal - distracted by noises and people (c) moved slowly toward boxes for sorting - checked back to find proper area by code

Along with your own interpretation of a student's performance you should be letting the student interpret his success or lack of success. This can be done by using the following format.

JOB SAMPLE REPORT

DATE_____ NAME_____

WHAT I DID_____

TIME I SPENT ON THE JOB_____

PART OF THE JOB THAT WAS HARD FOR ME_____

PART OF THE JOB THAT WAS EASY FOR ME_____

HOW I WOULD DO IT DIFFERENTLY THE NEXT TIME_____

This format will lead students into paying attention to what they are doing. Things that are causing them difficulty will hopefully be recognized by the student. Likewise, they can interpret their own strengths in relation to work.

I have discussed information you must be aware of. I have also discussed procedures of assessment of most use for the classroom teachers: interest, job sampling, and objectifying behavior. Neither of these aspects are worth a thing unless you have a system or plan of how you can use each: This is perhaps the catch that confuses us all.

A comprehensive aid in trying to organize yourself in dealing with students would be the Minnesota Theory of Work Adjustment suggested by Dr. Brolin. 'A student's work personality (abilities and needs) is taken into account along with work environment (ability requirement and reinforcer systems).

Your use of the information you collect should be guided by your objectives. They are:

(a) to render individuals capable of work, render meaning "to cause to be or become."

(b) to assist individuals in developing a value system which makes them want to be productive workers.

Both of these objectives actually depict you as a person who should assist students in making the most appropriate choice in terms pursuing employment. You are not responsible for making the final decision, you can't be. You are not responsible for training individuals in one area. The purpose of your activity is to "help" kids become aware of themselves and opportunities available to them in the world of work. This means you help them acquire enough knowledge to develop a well rounded self concept.

If you are going to do anything at all with the information you collect, it should only be in the area of guidance. The more information

you get on students that is related to employment the more information you have to help you relate to the student about why he may fail or succeed. Therefore, your responsibility is helping a kid acquire knowledge to develop a self concept. You have to share information with the kid, not horde it and wonder whether you'll use it.

In accordance with our objectives, we need to communicate to the student information that helps him develop the idea that he is generally employable; "that he has skills or strengths." The second aspect that has to be communicated is: "what areas of employment he can be successful within." This would best be approached by combining skill assessment under testing and work sampling. The work sampling aspect lets the kid explore his skills.

Combining information could be completed on a form such as the one on the following page. All data would be included.

WORK SAMPLE EVALUATION

STUDENT John Doe AGE 17 GRADE 12

WORK SAMPLE Mail Sort DATE 12-1-71

STANDARD PERFORMANCE RATING 8 letters per minute - 480 letters per hour 5 hours

STUDENT RATING 12 letters per minute for 39 minutes - 178 letters per hour - 4 hours

NOTES ON BEHAVIOR DURING WORK (a) coordination poor drops letters a lot - slows speed (b) looked around a great deal - distracted by other noises and people (c) moved slowly toward boxes for sorting - checked back to find proper area by code.

ACADEMIC RATINGS:

math - 2.1 - Problem areas - mental computation
reading - 3.4 - problem areas - listening
language - 3.4 - problem areas - complete thought sequence

PERSONALITY - BEHAVIOR TO MODIFY

talks too much
does not follow directions well
does not ask for help when needed

INTEREST - PERSONALLY EXPRESSED

Mailman

INTEREST TESTS

Clerk - Janitor - Truck Driver

Your placement of students on jobs was meant to be an exploratory effort, not training for a life occupation. At best, with assessment, you can make better educated guesses in directing students into areas where they have vocational strength. Likewise, you can make more educated guesses in directing students into further training. The best method you can go by in making decisions is to use all the information directly applicable to employment. The only reliability you can have is to practice hard the principles discussed. Hopefully, the more experience you have, the more mature you'll become in using assessment.

APPENDICES

APPENDIX A

Special Study Institute:
"VOCATIONAL EVALUATION AND CURRICULUM MODIFICATION"

February 1, 2, and 3, 1972
Ramada Inn, Des Moines, Iowa

A G E N D A

TUESDAY, February 1, 1972
Place: Ramada Inn, Des Moines

9:30 Welcome - Drexel D. Lange, Associate Superintendent, Pupil Personnel Services Branch, Iowa Department of Public Instruction.

Keynote - Dr. Donn Brolin - Stout State University - Need for vocationally-oriented assessment: its value, accuracy and contingencies of use with Educable Mentally Retarded populations.

Adult Needs of the Educable Mentally Retarded - Ray Morley, Special Needs, D.P.I. - Overview of the adult with emphasis on aspects applicable to vocational preparation.

Job Analysis - George Lawry, Career Education, D.P.I. - Analyzing jobs by means of an established format. Matching job to student. Categorizing job analysis into clusters.

11:45 - 1:00 Lunch

1:00 Job Analysis
Small group on-sight visit to job areas to analyze requirements of job.

Job Matching
Comparison of job analysis to student profiles.

Matching Simulation
Small group matching student profiles with job analyses.

4:45 - 7:30 Adjourn

7:30 - 9:00 Critique Session
Groups present and defend decisions made in afternoon session.

WEDNESDAY, February 2, 1972
Place: Area XI Community College, Ankeny

9:00 — Work Sampling - Dennis Krehbeil, CEC Area XI Community College - Development, evaluation, reporting and utilization of the work sample.

Observation of Work Sample Technique in Practice.

Exploration of Work Sample Evaluation Report - Small/large group examination and interpretation of reports.

12:00 - 1:30 — Lunch

1:30 — Using Work Samples in a Laboratory Setting - Arnold Erickson, Kennedy High School, Cedar Rapids - Development and use of work samples in large urban high school programs.

Developing an Individual Work Sample - Gene Jahncke, Cedar Rapids Community Schools - Techniques and considerations in the development of work samples.

Utilizing the Work Sample Technique and Information - Don Oxenford, Joint County School System, Cedar Rapids - Utilization of work sampling data in classroom curriculum modification and job placement.

4:30 - 7:30 — Adjourn

Place: Ramada Inn, Des Moines

7:30 - 9:30 — Determining and Directing the Vocational Interests of the EMR - Ralph Becker, Columbus State School, Columbus, Ohio - Assessment and orientation techniques used in developing vocational interests of the EMR.

THURSDAY, February 3, 1972
Place: Ramada Inn, Des Moines

9:00 — Work Adjustment - Dr. Jerry Chaffin, Kansas University - Data collection, interpretation, critical areas, and curriculum modification relating to work adjustment.

Interpreting case studies - Small group discussion relating to curriculum modification.

Group presentation of findings.

12:00 - 1:00	Luncheon
1:00 - 2:00	Summation, Donn Brolin, Stout State University - Using vocational evaluation to propose curricular change.
	Observations - Jerry Caster, Special Education, D.P.I.
	Orientation to Post-Institute Activities - Pete Malmberg, Special Education, D.P.I.

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APPENDIX C

BEHAVIORAL CONTRACT

Name _____

Address _____

_____ Zip Code

Please complete one contract for yourself and one for me. Please submit a contract regardless of whether you choose to participate or not.

Peter A. Malmberg

Please check the appropriate items.

_____ I do not wish to contract to accomplish any Post-Institute activities.

_____ By May 30, 1972, I will have completed and reported (on forms provided) the following activities:
1. Analyze five (5) jobs that are, or may be, performed by EMR students in my area.
2. Conduct five (5) work adjustment ratings on EMR students.
3. Correlate information obtained in #1 and #2 and propose specific curriculum modifications and recommendations relating to classroom instruction.

_____ By May 30, 1972, I will utilize, or supervise the use of, one work sample with handicapped or disadvantaged students and provide a descriptive report.

_____ By May 30, 1972, I will utilize one (1) suggested technique in determining and/or directing vocational interest and submit a descriptive report.

_____ By May 30, 1972, I will work with someone who will conduct one or more of the above activities and submit a descriptive report.

Send information regarding accomplishment of objectives by May 30, 1972 to:

Peter A. Malmberg
Division of Special Education
Department of Public Instruction
Grimes Building
Des Moines, Iowa 50319

_____
Signature of Individual Contracting

_____
Signature of Contract Manager

APPENDIX D

REPORT OF JOB ANALYSIS AND WORK ADJUSTMENT RATING ACTIVITIES

for

Special Study Institute:
VOCATIONAL EVALUATION AND CURRICULUM MODIFICATION

Name of Participant: _____

Briefly describe the general and specific implications of the five (5) job analyses.

Briefly describe the general and specific implications of the five (5) work adjustment ratings.

What correlations might be drawn from the above information?

What curriculum modifications in regard to classroom activities would be necessary to meet the needs of these students and/or younger students?

How and with what degree of accomplishment might these recommendations be implemented?