A STUDY OF JOB PERFORMANCE AND RELATED FACTORS
OF THE MENTALLY RETARDED STUDENT

DISSERATION

Presented to the Graduate Council of the
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Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

Gilbert James Lucchelli, Jr., B. S., M. Ed.
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The problem of this study was to investigate the relationship of the variables of impulse control, adaptive behaviors, responsible behaviors, intelligence, and duration of institutionalization to job performance of the mentally retarded student at the Denton State School, Denton, Texas.

The purposes of this study were

1. to ascertain the correlation of the variables of adaptive behaviors, responsible behaviors, impulse control, duration of institutionalization and intelligence quotient to job performance of the mentally retarded student at the Denton State School;

2. to determine which factor or combination of factors would be most useful for predicting job performance effectiveness of the mentally retarded student.

The ninety-seven mentally retarded students in this study were students at the Denton State School during the year 1974. The criteria established for the selection of the participants in this study were that each mentally retarded student had to have been in the vocational program during the year 1974, and he had to have been placed in an
employment setting after receiving vocational training in the vocational program at the Denton State School.

The instruments utilized to meet the purposes of this study were the Behavioral Characteristics Performance Scale (BCP), the Wechsler Adult Intelligence Scale (WAIS), and a job performance scale. The WAIS and BCP were administered by a professional with experience and training in the administration of these instruments as a regular part of the testing and evaluation at the Denton State School. The job performance scale was developed with the assistance of a panel of experts consisting of a counselor from the Texas Rehabilitation Commission, the vocational director at the Denton State School, and a member of the vocational research committee at the Denton State School. This job performance scale was rated by the job supervisors of the mentally retarded students in this study.

The statistical technique of the Pearson product-moment correlation (r) and that of the squared multiple correlation ($R^2$) were employed to answer the research questions. Also, the means, standard deviations, probability, F-ratio, error sum of squares, degrees of freedom, the change in the squared multiple correlation in the restricted model from the full model and the change in the restricted model's squared multiple correlation from zero correlation were reported.
The Pearson product-moment correlation was used to determine if there was a relationship between two variables. The squared multiple correlation was used to determine the relationship between a restricted set of variables and either the full model or zero correlation. The $F$-ratio and the probability value were used to determine if the level of significance of a variable or a combination of variables had a predictive value significantly different from the full model or if there was a significance better than chance.

It was concluded that of those variables included in this study, intelligence quotient was the best single predictor of job performance. The combination which was found to be the best predictor of job performance was impulse control and intelligence quotient. The variables included in this study (adaptive behaviors, impulse control, responsible behaviors, intelligence quotient, and duration of institutionalization), taken either singly or in combination, do not correlate highly enough with job performance to be of much value for predicting job performance.
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CHAPTER I

INTRODUCTION

Research by educators has accomplished much in the study of the mentally retarded student. The professional personnel at state schools often are involved in research related to the development of mentally retarded students and to the improvement and advancement of services offered to the mentally retarded student. Such research may serve to facilitate the development of the individual to the level at which he can return into the community and function as an asset to it.

Millions of dollars are being spent annually in research related to the mentally retarded student. In previous years, when a mentally retarded student was institutionalized, the tendency was for that person to decrease his job competencies; consequently, the institution would hinder the progress of the moderately retarded person instead of facilitating it. Professional workers in vocational programs for the mentally retarded student are striving to provide the student with a fulfillment of his individual needs. They are striving to teach him a specific skill and to develop his self-concept and social ability so that he can attain a higher level of employment success.
This study is designed to develop an understanding of the effect of social skills, intelligence, and length of institutionalization upon the job performance of the mentally retarded student so the value of services provided to such an individual may be identified and increased. The area of socialization is vast, and research is needed to improve understanding of it and its relationship to job performance.

Statement of the Problem

The problem of this study was to investigate the relationship of the variables of impulse control, adaptive behaviors, responsible behaviors, intelligence, and length of institutionalization to job performance of the mentally retarded student at the Denton State School, Denton, Texas.

Purposes of the Study

The purposes of this study were (1) to ascertain the correlation of the variables of adaptive behaviors, responsible behaviors, impulse control, duration of institutionalization, and intelligence with job performance of the mentally retarded student; and (2) to determine which factor or combination of factors would be most useful for predicting job performance effectiveness of the mentally retarded student.
Research Questions

To carry out the purposes of this study, the following research questions were formulated:

1. Is there a relationship between adaptive behaviors and job performance?
2. Is there a relationship between impulse control and job performance?
3. Is there a relationship between responsible behaviors and job performance?
4. Is there a relationship between intelligence and job performance?
5. Is there a relationship between duration of institutionalization and job performance?
6. Is there a relationship between the combination of impulse control and adaptive behaviors and job performance?
7. Is there a relationship between the combination of adaptive behaviors and intelligence and job performance?
8. Is there a relationship between the combination of impulse control and responsible behaviors and job performance?
9. Is there a relationship between the combination of adaptive behaviors and responsible behaviors and job performance?
10. Is there a relationship between the combination of duration of institutionalization and responsible behaviors and job performance?
11. Is there a relationship between the combination of impulse control, responsible behaviors, and intelligence and job performance?

Background and Significance

Bitter (4) conducted a study for the Milwaukee Jewish Vocational Service to establish services for mentally retarded students who participated in a work-experience program in which they received instruction for specific job preparation. This study demonstrated that the mentally retarded students in the classroom gained from exposure to work-related concepts such as responsibility. Mentally retarded students were placed in a simulated work environment in which their attitudes and work habits could be evaluated and developed.

From this research by Bitter, some implications for facilitation of job performance are noteworthy. The findings illustrated that a production shop must be reality oriented to be an effective tool. The study revealed that mentally retarded students need exposure to work and work experiences; this experience should approximate industrial conditions and environment as nearly as possible. It was reported that for a maximally effective, realistic work environment to exist, the supervisors must be production oriented. Furthermore, the report stated that many mentally retarded students benefit vocationally from rehabilitation
programming but require a longer term for preparation than traditional efforts offer. This need for additional time and patience with the mentally retarded student was due to his inexperience and lack of social sophistication.

Kolstoe and Frey (16); the staff at the Eugene, Oregon Project (9); the staff at the Goodwill Rehabilitation Center (11); and the staff at the University of Kansas Medical Center (24) have reported that evaluation of job performance must involve work experience; consequently, with work samples, the professional can more realistically and objectively observe and evaluate the weaknesses, strengths, and potential of the mentally retarded student.

Vocational needs of the mentally retarded students were studied by the staff at the Eugene, Oregon Project (9) and Aid Retarded Children, Inc. (1). One major need which was agreed upon in both reports was the need to have a flexible program so the mentally retarded student could develop to his highest vocational potential.

Clear evidence was found by Kolstoe (16) that the mentally retarded student who retained employment was superior in social and work characteristics to other retarded students. The lack of demonstrated social and vocational sophistication reported by Peckman (19) was the most frequent reason for employment termination. Peterson and Jones (20) stated that it was of vital importance that the school curriculum attempt to increase
social competence for mentally retarded students by concentrating on those academic aspects which have direct bearing on the facilitation of social and vocational performance. Allen and Cross (2) have reported that work experience needs to be underwritten by appropriate social concept development.

The staff of the Human Resource Center (13) conducted a study to identify and demonstrate broad evaluation and training factors which would facilitate optimal employee performance for the mentally retarded student. Also in the study, further attention was focused on the need for identification of the "intellectual" variables which should be predictive of competent performance. In this study, a dual attack was made on the problem of job analysis and the development of a predictive skills battery related to job analysis. The primary results of the study were that the mentally retarded student must be fully evaluated to define his specific vocational aptitude; specific tests which are useful for personal-social ratings of behavior and specific job-related skills ratings are beneficial in the prediction of satisfactory job performance; and the relative importance of personal-social factors and specific skill factors depends on the nature of the job as well as the level of skill required in the job. It has been suggested by the research staff at the Human Resource Center that the lower the psychomotor
skill level required in the job, the more important the personal-social factors become. In other words, if little or no psychomotor skill was required for a job, the only criterion for continued employability was the personal-social skill.

Windle (25) reported that the necessity for providing the mentally retarded student with a vocational skill for his increased development has been traditionally accepted. Tizard (22), Craft (8), and Collman and Newly (6) stated that poor work performance was the important "major cause" of job failure.

Standardized intelligence quotient test results were reported by Madison (18) not to be significantly related to job success of mentally retarded students. Kennedy (15), and Collman and Newlyn (6) reported that intelligence was not a valid predictor of job performance and that trainable mentally retarded students were making satisfactory vocational adjustment without protective supervision. Cowan and Goldman (7), Tizard (22), Bower (5), Pinkard (21), and Appell (3) reported that an intelligence quotient was not generally a valid guide in the prediction of vocational success of the mentally retarded student; however, Tobias and Gorelick (23) have found significant correlation between the WAIS performance intelligence quotient and vocational performance of the mentally retarded student. They further reported no significant difference between the Verbal
and the Full Scale intelligence quotients with respect to predictability.

The staff at the Laradon Hall Occupational Center completed a study in which a design was developed to present better methods of evaluating and training mentally retarded students for jobs through a better understanding of critical performance and behavioral factors (17). These mentally retarded students were subjected to testing procedures to determine their employment skills and deficiencies. Social factors were stated to be a variable of consideration in a study of job performance of the mentally retarded student in this report.

A search of the literature has revealed that social factors create a definite influence on job performance of the mentally retarded student, but the level of effect and interaction of social factors has not been investigated. Poor work performance has also been cited as being a major cause for employment failure; but the term is nebulous, and poor work performance can be attributed to many variables.

The present study was undertaken to provide additional data that would improve the value of services provided to the mentally retarded student by vocational educators. Also, it was hoped that the study would provide increased understanding of the variables which contribute to satisfactory job performance and would provide information for
identifying the characteristics of those mentally retarded students who have a high probability of satisfactory job performance.

Definition of Terms

For purposes of this study, the following definitions have been formulated:

**Dull normal.**--A term used to describe the intelligence of children obtaining IQ scores from 80 to 90.

**Educable.**--A term used to refer to mentally retarded students who are capable, to some degree, of achievement in traditional academic subjects such as reading and arithmetic. It is also used to refer to those mentally retarded children who may be expected to maintain themselves independently in the community as adults, or to that group of mentally retarded students obtaining IQ scores between 50 and 80.

**Furlough.**--A leave of absence from the institution.

**Intelligence quotient (IQ).**--A numerical expression of intelligence based upon tests; the most commonly used device for expressing level of mental development in relation to chronological age (10).

**Job performance.**--Work performance of the mentally retarded student in his employment setting as evaluated by his work supervisor.

**Social age.**--Relative social development expressed in terms of the age for which the degree of development
is typical; thus, a person with a social age of nine years has reached a stage of social competence equal to that of the typical child of nine chronological years (10).

Trainable.--A term used to refer to mentally retarded students who cannot be expected to profit from traditional academic subjects but who, nevertheless, are capable of benefiting from programs of training in self-care, social, and simple job or vocational skills. Also used to refer to that group of mentally retarded students who have IQ scores ranging from 25 to 50 (12).

Workshop.--An establishment in which manual or industrial work is done.

Work supervisor.--The individual responsible for evaluating the work performance of the mentally retarded student in the employment setting.

Delimitations of the Study

This study was limited to the mentally retarded students who participated in the vocational program at the Denton State School, Denton, Texas, during the year 1974.

Basic Assumptions

Although data obtained from the Behavioral Characteristic Performance Scale are subjective in nature, it is assumed that the instrument yielded sufficiently valid data, because of the expertise of the professional
(the Behavioral Characteristic Performance coordinator) who is responsible for the administration of the scale. It is also assumed that although the data obtained from the job performance scale are subjective in nature, it is sufficiently valid because the work supervisors involved in the job performance evaluation are continually involved in the evaluation process of these mentally retarded students. It is assumed that the work supervisors to whom the job performance scale was sent responded to it accurately.
CHAPTER BIBLIOGRAPHY


CHAPTER II

REVIEW OF THE LITERATURE

The major concern of this study was to investigate the relationship of length of institutionalization, IQ, and social behavior to job performance of the mentally retarded student. The review of literature in this chapter is presented in four major sections. The first area pertains to vocational programs and their effect on job performance. The second area includes the effect of institutionalization on the vocational performance of the mentally retarded student. The third area that received attention includes the desirable social behaviors needed by the mentally retarded student for increased job performance. The fourth area of review focuses on the IQ of the mentally retarded student and its relationship to job performance.

Studies Pertaining to Vocational Programs and Job Performance

A report by Brown, Johnson, Gadberry, and Fenrick (8) stated that individual work settings consistently resulted in higher production rates than assembly line settings regardless of reinforcement contingencies in effect. The production rates consistently improved when tangible reinforcement was successively made contingent on attaining specified goals of the mentally retarded student.
Chaffin, Spellman, Regan, and Davison (12) conducted follow-up studies of mentally retarded students and found that they were functioning in the competitive labor market without the benefits of a work-study program. However, the mentally retarded students who had participated in the work-study programs held their jobs longer and earned more money than the comparison group (chosen because of related IQ, achievement and socioeconomic status) without the benefits of the work-study program.

Salmon (49) wrote an article on the mentally retarded students in Pontiac, Illinois. He stated that mentally retarded students needed vocational education from which they could develop work habits and attitudes that would help them to function more effectively in the world of work.

Study Related to Length of Institutionalization

The staff of the Agnews Residential Program (36) revealed that long histories of institutionalization should not be over-stressed as a negative force in accepting mentally retarded students into vocational programs. Seventy-five percent of the employers of the mentally retarded students were reported as exhibiting positive attitudes toward the adequacy of these retardates who had long histories of institutionalization.

The report added to the importance of socialization in the development of programs for the mentally retarded student.
because of the finding that those mentally retarded students who demonstrated higher job performance were more involved in recreation and socializing. The findings stated that better job performance was more often associated with higher IQ levels, older age, and prior institutionalization over longer periods of time.

Studies that Report Relationship of Social Behaviors to Vocational Success

The relationship of personal and work adjustment was analyzed by Domino and McCarty (15) in a sample of thirty-five mentally retarded students who participated in a vocational workshop. The researchers' results supported the hypothesis that personal adjustment was positively related to work adjustment.

Sixty-five mentally retarded students who had received vocational training at the Lynchburg Training School and Hospital were analyzed and compared to sixty residents not in the vocational training program by Ohwaki (41). He attempted to delineate behavioral characteristics of institutionalized mentally retarded students who had the greatest possibilities for high levels of job performance. Those mentally retarded students who had received the vocational training exhibited less frequent interpersonal physical aggression. However, no specific segment of the vocational training was presented as a means of determining
the reason for the improved interpersonal behavior of the mentally retarded students who received the vocational training.

Mentally retarded students in the Miami Sunland Training Center were studied by Schwartz and Allen (50) in an attempt to monitor the effectiveness of the institution in achieving certain behavioral objectives. The researchers stated that an adaptive behavior checklist should be used in planning programs, assessing programs, and properly placing mentally retarded students within the institution to improve its efficiency.

Lehrer and Schimoler (23) investigated the social learning of mentally retarded students. Their results indicated that reliable assessment procedures which tap cognitive skills and behavioral dimensions are feasible. The study placed the social adaptation into two primary components, a cognitive and a behavior dimension. The results revealed that the Cognitive Abilities Test sub-tests, IQ, the Adaptive Rating Scales, and Verbal Abilities Scale showed significant correlations with the Social Learning Curriculum Survey Test that was used.

A vocational program that was designed for mentally retarded students in which they could gain work experience and positive self-concepts was studied by Rudd (48). The students established positive attitudes toward their
education and work. The students enjoyed their work and developed positive work habits, such as punctuality and enthusiasm.

The importance of the behavior adjustment of the mentally retarded students in their job performance was determined in a study by Song and Song (52). They used a rating scale designed to determine vocational adjustment of certain mentally retarded students as good workers and others as poor workers through the use of ratings scales.

Finch and Ginn (19) investigated the interpersonal behavior of mentally retarded students. They demonstrated that discriminate degrees of minimal behavior of mentally retarded students could be found.

A comparison study with a group of mentally retarded students and a group of nonmentally retarded students was accomplished by Ward (54). He found that it was possible to measure personality development in mentally retarded students through fantasy identification shown in responses to projective test stimuli.

Karen and Eisner (27) studied mentally retarded students in a vocational workshop. Their results showed that behavior modification can be used to improve the performance of mentally retarded students on five different task-specific behaviors. The data revealed a reduction in average error and an increase in production with the use of reward systems.
Joiner and Towne (26) expressed the belief that the influence of others as they convey expectations to mentally retarded students through interacting with them was where attention needed to be placed. Concern was directed to the matter of how mentally retarded students perceive expectations and how they act upon their perceptions. They suggested increased academic outcomes for mentally retarded students by modifying their interaction with others.

Social, emotional, and interpersonal factors related to work of the mentally retarded student were stated by Plue (44) to be primary areas needing research. He expressed the belief that emotional variables, appearance, communications skills, peer-group relationships, and social skills are some of the uniform specifics that are crucial as they relate to the mentally retarded student.

The study on vocational readiness by Neff at the State University of New York (18) was developed to determine whether mentally retarded students were ready to utilize vocational services at the time they left school because of their exposure to a variety of prevocational work experiences in their formative years. A major problem was the difficulty in designing treatment programs which emphasized meeting the needs of anxious, socially incompetent, dependent, withdrawn mentally retarded students for whom the work world was frightening and alien. The goal
was to facilitate the individual's growth into a socially competent, outgoing, assertive, independent person who did expect to function in the world of work. Neff reported gains in socialization and interpersonal adjustment for the mentally retarded students under study but not necessarily in employability.

Mudd (38) explored the post-school vocational adjustment of mentally retarded students in a vocational program in Massachusetts. The study sought to determine what personal characteristics appeared to be associated with different degrees of vocational adjustment of the mentally retarded students.

A social maturity scale was devised in order to determine social functioning, skills in communication, occupational skills and experiences, and locomotion ability. The scores on this scale were designed to gain a picture of the mentally retarded student's functioning just prior to going to work.

The results indicated that as duration of institutionalization increased, the degree of vocational adjustment decreased. Mentally retarded students with parents in a higher social class were found to have poorer vocational adjustment than mentally retarded students with parents in a lower social class.

A recommendation was made by Mudd that special classes be organized to meet the needs and potentials of
mentally retarded students of different ages and with different levels of intellectual and social ability. Encouragement was given to vocational-educational programs designed to assist the mentally retarded students reach their full potential.

The investigation at Buffalo Public Schools (39) was designed to assist the mentally retarded student in obtaining and maintaining employment which would enable him to be self-supporting. This report referred to this task as the most important life function of the mentally retarded student.

A purpose of the study was to develop in the mentally retarded student a thorough knowledge of the proper aptitudes and attitudes necessary to maintain a job. This was to be accomplished by instilling an understanding of the personality traits that society deems most desirable to insure continued employment. Emphasis was placed on explaining to the mentally retarded student why he must adhere to the dictates of proper employer-employee relationships, developing a desire in him for relations based on mutual respect and cooperation with all people, and cultivating skills such as self-control that would insure the mentally retarded student continued employment. Importance was placed on being able to accept criticism, a willingness to compromise, dependability, trustworthiness, attentiveness, and adapting to changing situations.
Gravatt (24) conducted a study to determine the effect of self-concept in relationships with others and the influences it had on the mentally retarded student's attitudes, values, needs, and behavior. He felt that self-concept was the basic organizing principle in teaching social and community skills to the mentally retarded student and that from the teacher's perspective, a mentally retarded student's concept of self in relation to others was the key to understanding him and fashioning learning experiences to meet his special needs. The report stated that an understanding of the self-image of the mentally retarded student and his mechanisms to protect this image, rather than his intellectual ability, may be the key to evaluating his potential in learning social and community skills necessary for independent living.

The skills that the study was primarily concerned with were skills in self-understanding, self-control, and social interaction. The recurring theme was "self" in context with others.

Capello (10) stated that the purpose of education was to develop the full potential of the student in preparing him for life, and that the development of social aspects was a part of this educational process. He emphasized that a program should develop observable behavior patterns and changes in behavior, and also that the mentally retarded student needs an awareness and understanding of character
traits necessary to retain a job. Capello encouraged the teaching of impulse control and the rewards of such behavior.

Cowles (14) reported that the mentally retarded student needed to learn behavior patterns by action and reaction in living and learning situations within the educational environment. She further stipulated that it was necessary for the mentally retarded student to develop behavior patterns which are socially acceptable in the community. Cowles stated that the education of the mentally retarded student should teach him respect and obedience for authority; that one must be taught that rules and laws are established for the common good; and he who disobeys may suffer and is often responsible for making others suffer as well. She stated that the teacher must exercise wisdom in the demands made on the mentally retarded student.

Cowles stated that the mentally retarded student must be taught to govern his tongue and his temper and to settle his difficulties by means other than physical means. She placed importance on helping mentally retarded students to realize that other persons are entitled to their own points of view, beliefs, and ways of following through on actions. She said that mentally retarded students are especially prone to laugh at, or make fun of, that which does not seem to fit into their own mode of living.
She also stated that it is desirable for mentally retarded students to have confidence in their own abilities to adjust or adapt to the situation in which they find themselves. This does not mean that the child should be presumptuous, but that he should make decisions for himself, initiate some activities, and do work independently. Class activities are suggested to provide many opportunities to demonstrate that if group undertakings are to be accomplished effectively, all mentally retarded students must work for the common good, and individual preferences must be modified to meet the needs of the group. According to Cowles, mentally retarded students need to be taught ordinary polite usages of society such as being respectful and considerate of the rights of others.

A study by Capobianco and Cole (9) was designed to provide a better understanding of the functioning of social levels of the mentally retarded student. The objective was to facilitate the educator in developing a curriculum that would be designed to meet the needs of the mentally retarded student and foster social adaptability within the group. The researchers also compared the levels of social functioning to norms established for average to superior mentally retarded students of comparable ages.

The results of the study demonstrated a statistically significant difference (.001 level) in favor of educable mentally retarded students over trainable in social behavior.
abilities. Mental age did not seem to influence the pattern of social behavior in the mentally retarded student.

The investigation by Bitter (6) focused on improving the ability of the mentally retarded student to obtain and adjust to a job. One-hundred and thirty-two subjects were served in the project, and a report was made on the importance of social competence in vocational success. Bitter expressed the belief that school curriculum should be structured in a manner that would increase social adjustment. He further reported that work experience can only succeed when it is underwritten by appropriate social-concept development and experiential background consciously planned for in the curriculum for the mentally retarded student. He stated that it was desirable to incorporate social preparation early in the curriculum for the mentally retarded student.

The importance of the mentally retarded student's self-concept was emphasized by Bitter with reference to successful employment. He implied that the need for the development of techniques for self-evaluation was to facilitate the development of the mentally retarded student's confidence in self to adjust to circumstances in which he finds himself.

Work programs for the mentally retarded student were emphasized as being needed to develop the student's social competence for personal adjustment in the community by
Cegelka (11). He stressed the need for personality development and acquisition of vocational skills for economic independence. Social incompetence and personality problems were identified as two primary areas that restrict the mentally retarded student's job opportunities.

Work programs should be designed to provide experiences which involve the total person, according to a study by Etienne and Morlock (17). They stated the opinion that the mentally retarded student who possesses a higher probability of job performance is likely to be one with greater abilities in social and interpersonal interaction, dependability, industry, and educational achievement level.

Kokaska and Sigler (30) doubted whether mentally retarded students could function on the job if they did not possess positive personal qualities. The researchers discovered that job placement was a logical extension of a work program, but that it is of questionable value when adequate behavioral preparation is nonexistent.

Treatment programs for improving adaptive behaviors in the mentally retarded student were found by Balthazar (3) to be presently insufficient. He further stated that this present insufficiency may be due to the lack of a model.

The need to develop basic work habits and a sufficiently high level of sociability in the mentally retarded student
was stated by Borelli (7). He found that the mentally retarded student needs to be responsible in order to increase work performance.

Bhattacharya (5) reported that it remains to be seen how well the Adaptive Behavior Scales measure the behavioral dimensions of the mentally retarded student. He reported that Adaptive Behavior Scales may meet some of the limitations demonstrated by the intelligence tests.

Work performance of mentally retarded students was investigated and data was gathered on specific abilities, personality characteristics, physical defects, and outward appearance by Sali and Amir (48). They found that performance and output variables appear to be more influenced by personality characteristics than by IQ.

Allen, Cortazzo, and Adamo (2) conducted a study of adaptive behaviors of mentally retarded students. They reported that supervisors of mentally retarded students are reliable observers and give valid estimates of their adaptation to the many aspects of the activities of daily living.

Goldstein (22) found that the goal of educational programs for mentally retarded students should be to develop socially mature individuals who can think critically and act independently. He focused on social and occupational concepts, facts, and behaviors which were consonant with
social adaptation during maturation and at maturity. Goldstein has emphasized the interrelationship between the social, psychological, and physical phenomena. He has stated that the individual is expected to read his environment, recognize the criteria of social adjustment, and then perform in such a manner that he will not attract disapproval.

Goldstein has made reference to irresponsibility, poor judgment, and lack of social sensitivity as characteristics found in mentally retarded students who had a history of employment dismissals. According to Goldstein, maladaptive or deficient behavior was regarded as a sign of lack of exposure to models of learning and experiences, exposure to learnings and experiences that were inappropriate or antagonistic to expected behaviors, or learnings and experiences that were distorted or misperceived by the learner that would be appropriate by ordinary standards.

An investigation by Beedy, Book, McFatridge, and Novak (4) was designed to increase social and personal relationship skills in mentally retarded students. The major mechanism of accomplishing this objective was parental involvement. Progress was made in parents' attempts to encourage independence in their children. Visits with the parents helped many of these parents to understand their feelings toward their child and changed their attitudes from one of being overprotective to one
of being more encouraging and supporting. The report concluded that the parents needed to reduce their expectations and consequently reduce tensions and pressures on the mentally retarded student.

Shulman (51) found that many mentally retarded students never learn to cope with problems pertaining to skill proficiency and social proficiency. He worked on a plan to develop a program of experiences to provide mentally retarded students with achievement experiences to develop their proficiencies. Shulman stated that this could only be done within a social matrix, because the development of a sense of manipulative competence without the corresponding development of feelings of social competence would still leave the mentally retarded student with a rather uneven development picture.

He emphasized that there was little question that the psychomotor ability to perform the specific tasks which constitute the demands of the job are but a small part of the overall demands made upon any worker. He stated also that an adequate study of the vocational development of the mentally retarded student required the investigator to broaden the scope of research in order to include more than just specific vocational variables. He stressed the belief that any program with the objective of vocational development would also need to be comprehensive.

Shulman worked with fifty-five mentally retarded students in a follow-up study; and from the results, he
concluded the process of vocational development was intimately bound up with the development of a host of other characteristics. He found direct measures of vocational competence, diagnostic ratings, and production to be consistently covaried with measures of intelligence, social maturity, and manual dexterity. He stated that there was uniformity about the process of development; in that, deficits in one area were generally reflected in deficits in others, while growth in one area was most often paralleled by growth in others. It became clear from the study, the environment from which mentally retarded students came was a major determinant in their vocational development.

Shulman set up a realistic work situation and engaged mentally retarded students in actual work tasks in a work setting under the supervision of foremen and for an hourly wage in an attempt to observe characteristics of the mentally retarded students' vocational behavior. He was interested in interfering with the ongoing pattern of vocational development in the mentally retarded student in order to maximally modify the eventual outcome in the direction of adaptive vocational maturity.

He stated that intelligence, or more accurately the lack thereof, was the sine qua non of mental retardation; a clear understanding of its underlying structure was essential in a study to determine characteristics of the
mentally retarded student that yield a high job performance. He demonstrated a clear relationship between the specific subtests of the Wechsler Intelligence Scale for Children which discriminate between the mentally retarded student's levels of employability and the structure of intelligence.

Garr (21) investigated a program for mentally retarded students in which the objectives were to prepare the mentally retarded students for adequate personal social adjustment as young adults, and to develop within these pupils demonstrated vocational capability commensurate with their interests and aptitude. In the program, emphasis was placed on student responsibility and the importance of specificity and clarity in stating these responsibilities in terms that the mentally retarded student could understand.

Young (54) reported that work adjustment was the primary concern in the preparation of the mentally retarded student for occupation entry. Special emphasis was placed on the areas of self-reliance and reliability; peer group interpersonal relations; work tolerance; regularity and punctuality; positive responses to direction and supervision; perseverance on the job; and relative values of speech, accuracy, and productivity.

Plue (44) analyzed the social implications of work for the mentally retarded student in vocational education. He placed personal skills, attitudes, aptitudes, and
and relations with others under the broad heading of social aspects. He stated that needed social skills for higher job performance were being able to mix well, to cooperate, to communicate, to be courteous, and to have acceptable socializing activities.

Employers in the study stressed cooperation, cheerful attitudes, and punctuality as crucial indicators of successful employment. Educational planning was regarded as needing to pay close attention to such factors as self-confidence, cooperation, initiative, ability to adjust, accepting established practices, an acceptable manner of interpersonal interaction, loyalty (as it relates to the job), and the ability to make decisions for self and others.

In a report made by the staff at Florida State University (20), the need to facilitate the mentally retarded student's appreciation and understanding of responsibilities of a worker was emphasized. Emphasis was placed on developing the mentally retarded student's ability to express clearly and courteously ideas in common situations calling for oral communications, understanding of rights of the employer and employee, and knowing responsibilities the employee has toward the employer and fellow employees. The study reported the objective of an effective vocational program for teaching the mentally retarded student must include the display of friendliness, cooperation, honesty,
trustworthiness, and concern for others as determined by a teacher-made checklist of specific actions and reactions. Reference was made to positive behaviors on the part of the mentally retarded student as exemplified by his ability to accept the code of values approved by society and to begin to appreciate and understand this code; to realize the importance of doing one's share of work and being reliable as a group member; to be able to accept criticism and know how to get along with other workers and one's employer; to show the importance of using common courtesies; and to display punctuality.

Leland (33) stated the issue in working with the mentally retarded student was to determine what particular behaviors led to his social definition. He stated that once we know which of the behaviors are interfering with the mentally retarded student's ability to survive in his social unit and what type of behaviors are creating the unpleasant visibility, the educator knows which behaviors are most in need of modification. He found the mentally retarded student was characterized by an impairment in adaptive behavior.

Leland investigated the manner in which the mentally retarded student copes with the demands of his particular environment and how this coping serves as the basis for the definition of mental retardation within that special environment. Certain behaviors were modified and shaped;
and consequently, the mentally retarded student often maintains a useful and happy existence. This was not to imply that a cure had resulted; but rather, the areas which interfered with survival had been changed so survival was possible.

The implications expressed by Leland were that the adaptive behavior concept of mental retardation was essential to treatment programs. There must be a realization that what the mentally retarded student was doing and what he was failing to do were both essential to the educational process. Services can thus be designed to assist the mentally retarded student in developing desired behaviors. He further added this shift demands an understanding of the elements which will lend themselves to prevention and to reversibility, which were the real meanings of the adaptive concept in mental retardation.

Ross (45) was involved in studying mentally retarded students in California state hospitals in areas of physical disabilities, self-help skills, and different frequencies of problem behaviors. Percentages were found for each of the four levels of retardation—mild, moderate, severe, and profound. Results showed as one moves from profound toward mild, there are relatively fewer mentally retarded students with physical handicaps; more mentally retarded students trained in self-help (bathing, feeding, dressing) skills; and fewer mentally retarded students with problem
behaviors (aggression, temper tantrums, destructive behavior).

Kitzmiller (29) reported that, based on his findings, he believed a vocational education program for the slow learner should allow for the development of a healthy self-concept through recognition of, and participation in, useful work and should provide experiences which allow for the development of respect for all levels of occupational skills. He stated he felt each mentally retarded student should receive sufficient training to allow for the development of employable skills and to develop social competencies by comingling slow learners with persons of higher social ability to gain a transfer effect to the greatest extent possible. Experiences provided an opportunity to build respect for, and dignity in, responsibilities that the mentally retarded student has in his work situation. Kitzmiller emphasized development of the habit of self-discipline required one to do an act when it needed to be done, whether it was a pleasant task or not. He stated a spirit of cooperation among mentally retarded students was needed to insure harmonious working relationships. He also encouraged the development of desirable attitudes and practices with respect to health and safety.

Gruen and O'Donnel (25) developed a study to test the hypothesis that experimentally induced success and failure experiences would differentially affect mentally retarded
students. These mentally retarded students had presumably had a history of failure. Prediction was made that the mentally retarded students would set lower prediction-of-performance estimates and would be more variable in their estimates than would the normal children.

The study dealt with twenty-four mentally retarded students and indicated those who experienced initial failure set lower estimates than mentally retarded students who had initial success. This effect from the experimental manipulation of success and failure was a pronounced one.

A study by the staff at the Laradon Hall Center (40) was designed to determine how mentally retarded students who are employed differ in performance and behavior from those who have been unable to hold a job. The study began with 236 mentally retarded students; but through various elimination processes, only twenty-one of these mentally retarded students could be used in the study. The study noted an insignificant relationship between academic knowledge and reasoning areas and suggested this as one source of variance of standard IQ tests in predicting job performance for the mentally retarded student.

Studies that Report Relationship of Intelligence to Job Performance

In the investigation by McPherson and Stephens (37), it was reported that no distinguishing characteristics could be found in mentally retarded students who experienced
poor job performance. No differences were found which could be attributed to chronological age, IQ, or educational achievement. The reasons for job removal fell into two general categories: (1) external circumstances which resulted in termination of training, and (2) poor attitudes on the part of the participants. McPherson and Stephens used forty-four mentally retarded students in their follow-up study and found that eighty-nine percent of these students were employed at the time of the follow-up study.

Kraus (31) did a study concerned with the relationship of supervision in the community and background variables to social adjustment of seventy-four mentally retarded students. He used multiple-regression analysis and found supervision in the community had a highly significant positive relationship to all measures of adjustment except delinquency, and delinquency was associated with higher IQ. Also, length of stay with foster families was found to be related positively to the unsettled employment of the mentally retarded students.

Malone and Christian (34) conducted a study using 126 institutionalized mentally retarded students. They found adaptive behavior and IQ were the most effective scores in providing significant discrimination between the vocational training levels. Suggestion was made to use adaptive behavior scores for placement of students in special education programs.
McKerracher and Orritt (35) analyzed mentally retarded students who had been given the full-scale WAIS. The results of the study revealed intelligence was an autonomous factor unrelated to job performance. The researchers stated their results yielded no clear-cut predictive material of job performance, and that future analysis needed to be concerned with social and personality variables.

Vocational and socioeconomic success were found to be highly interrelated by Peck (43). He further stated IQ was a valid predictor of vocational potential.

While working with 100 mentally retarded students to study major syndromes of higher job performance present in the functioning of mentally retarded students, Peck analyzed minor information from individual predictor factor values to determine what attributes were related to membership in various groups who had higher job performance. He found socially oriented mentally retarded students tended to perform well in vocational sociocivic areas if continued guidance was accepted. Also, mentally retarded students who performed in the range of IQ scores of 50 to 75 who were work oriented often attained poor job performance. Peck reported mentally retarded students with attitudes of rebelliousness, critical regard for others, and irresponsibility were often associated with dependence on welfare agencies. Poor job performance was characterized by excessive time spent at home and tended to relate to
extreme amounts of parental protectiveness. He found longer periods of rehabilitation training did not always relate to higher job performance. Mentally retarded students who lacked job readiness did not increase their chances for higher job performance by extended training.

A study by the staff at Lt. Joseph P. Kennedy School for Exceptional Children (42) was conducted to appraise the needs of their community. The program was designed to train mentally retarded students in social skills in an attempt to increase vocational potential through training and placement services. The report stated IQ was a poor indicator in a work setting where often a lower-grade mentally retarded student can be seen to be functioning more productively than his potentially more adequate peer because the latter was unable to invest himself more completely in his work.

Diagnosis was made on mentally retarded students' strengths and weaknesses in the area of interpersonal relations; including relationship to supervisors; ability to handle authority and accept criticism; and relationships to coworkers. A counseling program was designed to help the mentally retarded student obtain a more realistic view of himself by evaluating his strengths and weaknesses and then moving toward acceptance of his limitations and maximizing his assets. Attempts were made to increase the mentally retarded students' success experiences so
they would realize they were productive and meaningful individuals worthy of self-respect. Behavior was carefully observed so appropriate behavior in a work setting could be explained if the mentally retarded student had need of such change. Consequently, the educator would not moralize but rather explain what was acceptable and what was unacceptable in a real work setting.

Ross (46) analyzed the changes in chronological age, mental age, and IQ on a population of institutionalized mentally retarded students. His analysis showed that decrement in IQ in the mentally retarded student was due primarily to increases in chronological age and not decreases in mental age. Consequently, if this was the case, mental age was the more meaningful index of intelligence level.

The results of a study by Adams (1) clearly demonstrate that psychologists rely almost totally on IQ, and physicians tended to discount their own judgments made on the basis of direct observations and parental interview whenever their judgments did not influence the extent of reliance upon the IQ. The fact that measured intelligence was given so much attention while index of adaptive behavior was given so little importance was surprising to Adams because of the movement to place adaptive behavior in a more central role in the classification of mental retardation. He stated it was important to identify factors
which were operative in making decisions about the lives of mentally retarded students, so these factors may be systematically included in classifying mental retardation. He suggested most crucial determinants of what decisions were made regarding a mentally retarded student were primarily societal-environmental factors.

Social contact with individuals with higher IQ's than the mentally retarded student was used to give the mentally retarded student a model to pattern behavior after, according to Gottlieb and Strichart (23). Association learning occurred because the mentally retarded student had a leadership figure to observe; and thus, he could learn appropriate socialization skills.

The WAIS Performance IQ was found to provide a significant contribution to the prediction of job performance of the mentally retarded student by Erickson (16). The results showed a mentally retarded student may have a low score on verbal comprehension and have a high score on his ability to perform nonverbal tasks. Consequently, because of this phenomenon, the mentally retarded student's scores on the performance or nonverbal portion of the WAIS were included in his analysis as a predictor variable.

Kershner (28) investigated forty-two mentally retarded students who were institutionalized. He tested them before entering the institution and then one year later on measures of social quotient (SQ) and intelligence quotient (IQ).
He assessed their families on the basis of family functioning and made comparisons on twenty-seven community-based families and their children who were of similar chronological age and IQ.

The community children demonstrated consistently greater SQ's in comparison to their IQ's, which suggested that the significantly greater SQ may be a determining factor in a family's decision to keep their mentally retarded student at home and/or the result of a concerned family's efforts to assist in the development of their child. The different patterns of IQ/SQ discrepancy found in comparing institution and community children indicated reversals in IQ/SQ discrepancy, with IQ's greater than SQ's, may be indicative of a stressful family situation which leads to admission of the mentally retarded student to an institution.

The continued presence of the mentally retarded student in the family resulted in decreases in the function of both the child and his family. Removal of the mentally retarded student produced a favorable effect on family functioning, but the decrement in IQ shown by the institutionalized mentally retarded student could not be explained adequately from the data.

The institution group had a negative correlation between low initial SQ and family increments in functioning. The results pointed to a complex reciprocal interrelationship
existing between the mentally retarded student and his environment which appeared to be crucial to an adequate understanding of the problems presented by families of the mentally retarded students.

SUMMARY

Most of the studies emphasize the importance of social abilities regarding the job performance of the mentally retarded student. Research has verified social behavior can be developed, organized, and presented in a curriculum unit that meets the needs of the mentally retarded student and increases his ability to function in an employment setting. Investigators have suggested there should be increased concern centered around the social-emotional and interpersonal factors related to the work of the mentally retarded student. They have stated mentally retarded students need to develop behavior patterns which are socially acceptable to the community. Emphasis has been placed on the need for curriculum to be structured in a manner that will increase social abilities by concentrating on behaviors which contribute to social adjustment. Researchers also have stressed that work performance can be increased only when social-concept development and experiential background are deliberately planned in the curriculum for the mentally retarded student.

The vocational workshop has been referred to by researchers as a device in which social skills can be
realized and personal happiness cultivated. In this vocational program, it is possible to teach the mentally retarded student the responsibility he will face in a realistic work setting.

The matter of intelligence has met with controversy in the literature. The question has been raised whether IQ is a valid predictor of higher job performance, and research can be found to substantiate both sides of the issue. Some researchers found the IQ measure to be valid when subtests of Wechsler instruments were used, while others have found IQ is not a good measure of expectation of vocational achievement.

The review of the literature has revealed many positive attributes of longer prior institutionalization and its value in the prediction of job performance. Researchers have reported the routine and regularity of the institution provide environmental control which facilitates the development of appropriate vocational behaviors. Studies reveal longer prior institutionalization increases potential for successful completion of vocational training along with higher job performance.

Recommendations have been made in the literature for a more comprehensive evaluation of student social maturity, increased development of interpersonal relationship skills, and facilitation in the areas of attitude and personality development. The present study was an attempt to gain
such increased evaluation through further acquisition of information about the relationship of adaptive behaviors, responsible behaviors, impulse control, intelligence, and length of institutionalization to job performance in an effort to improve the prediction of job performance of the mentally retarded student.
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CHAPTER III

PROCEDURES OF THE STUDY

The vocational director at the Denton State School, Denton, Texas, was consulted to determine what research would be of benefit to his vocational program. After discussion and research, a research proposal was developed, and six copies (one for each member) were presented to the research committee at the state school for their consideration. The committee gave their approval of the research proposal and recommended to the superintendent that the research be permitted on the campus. The superintendent granted permission in written form.

Selection for Subjects

The ninety-seven mentally retarded students in this study were students at the Denton State School during the year 1974. The criteria established for the selection of the participants in this study were each mentally retarded student had to have been in the vocational program during the year 1974, and he had to have scores recorded from the Behavioral Characteristics Performance Scale (BCP). The mentally retarded student also had to have been placed in an employment setting after receiving vocational training in the vocational program at the state school.
Records were researched which contained furloughs and discharges of the mentally retarded students. The names of those who had been discharged or furloughed for over thirty days were recorded. This list was then checked for mentally retarded students who had participated in the vocational program and who had been placed in an employment setting by the vocational director and his personnel. This new list was then submitted to the Behavioral Characteristics Performance Scale Coordinator at the Denton State School, who determined which of these mentally retarded students had been given the Behavioral Characteristics Performance Scale. Consequently, the mentally retarded students who remained were those who had participated in the vocational program at the state school, had BCP scores in their files, and had been placed in employment settings.

The mentally retarded students' names on the list were randomized and given numbers so the rights of privacy laws would not be violated, and the anonymity of these students would be retained. Research personnel at the state school assigned these numbers on the data sheets which contained the Behavioral Characteristics Performance Scale scores, IQ's, and length of institutionalization of each of the mentally retarded students.
Instrumentation

Three instruments were used to meet the purposes of this study—the Wechsler Adult Intelligence Scale (WAIS); the Behavioral Characteristics Performance Scale (BCP); and a job performance scale. These will be discussed in the following paragraphs.

The WAIS was designed to be a broad-sampling, wide range of ability, individual test of adult intelligence, as stated by Buros (3). Norms from ages 16 to 75 and for IQ's ranging from 45 to 159 are provided for the adult. This instrument has six verbal and five performance areas in which the subtests provide a point scale for indication of intelligence. The various subtests provide indices of impairment from sensory, motor, and other special disabilities. Subtest scores which are missing are easily prorated to provide full-scale estimates of IQ when special disabilities make it desirable to limit some of the subtests.

Wechsler (5) found the full-scale reliability of the WAIS to be .97 for ages 18 to 19, 25 to 34, and 45 to 54. A performance reliability coefficient of .93 was found for ages 18 to 19 and 25 to 34 and one of .94 for ages 45 to 54. A verbal reliability coefficient of .96 was found for ages 18 to 19, 25 to 34, and 45 to 54.

The concurrent validity of the WAIS was reported by Buros (3) to have been established by comparing the
instrument to the Stanford-Binet. The correlation coefficient was .85 between the scores on these two tests.

Robb, Bernadoni, and Johnson (4) report for ages 18 to 54, the WAIS has a reliability coefficient of .96 for its Verbal Score; .93 for its Performance Score; and .97 for its Full-Scale Score. In an analysis of the relationship between various subtests and the scales (Verbal, Performance, and Full-Scale), evidence can be found of content and construct validity of the WAIS. A high correlation was found in the WAIS for the subtests with the total score (as criterion) and only a modest correlation with each other. This follows the theory that a high correlation with the total scores indicates the tests measure essentially the same characteristic, while the lower interest correlations imply the tests measure different aspects of the criterion.

The Behavioral Characteristics Performance Scale (BCP) was used to obtain sociological factors. Its administration was supervised by a professional with experience and training in the administration of the instrument. This person's position title is that of Behavioral Characteristics Performance coordinator, and he is employed at the Denton State School. A panel of experts, consisting of the vocational director at the Denton State School, the Behavioral Characteristics Performance coordinator, and two members of the vocational
research committee stated that the BCP is the most effective instrument for measuring sociological (behavioral) characteristics of the mentally retarded student. The Texas Mental Health and Mental Retardation Department has adopted the BCP in all Texas mental health and mental retardation institutions for individual appraisal of behavioral characteristics because of its proven effectiveness.

The job performance scale was used to obtain data pertaining to the performance of the mentally retarded students in their employment setting. A panel of experts, consisting of a counselor with the Texas Rehabilitation Commission, the vocational director at the Denton State School, a professor of vocational-technical education at North Texas State University, and a member of the vocational research committee at the Denton State School agreed the twelve characteristics found on the job performance scale were the most important characteristics of job performance. The total value from the scale was used in the raw data.

Testing of the Subjects

The Wechsler Adult Intelligence Scale and the Behavioral Characteristics Performance Scale were administered during the mentally retarded students' institutionalization period at the Denton State School as a part
of the regular testing program. The examiners were trained, qualified personnel, experienced in the administration of the instruments. The test's results were recorded in each mentally retarded student's permanent record folder.

The job performance scale was sent to the job supervisors of the mentally retarded students with the assistance of the vocational director and vocational research personnel at the Denton State School. When these scales were returned, the mentally retarded students' code numbers were placed on the scales to retain their anonymity. This data was compiled along with the BCP scores, IQ scores, and length of institutionalization.

Procedures for Analysis of Data

The data for the total group was analyzed to determine the relationship of job performance to adaptive behaviors, responsible behaviors, impulse control, IQ, and length of institutionalization. Also, the data was analyzed to determine the best combination of variables for predicting job performance.

The statistical procedure of the Pearson product-moment correlation (r) was used to determine whether there was a relationship between two sets of paired values. In most cases, the paired values are: (a) two different measures on each of several objects or persons, or (b) one measure on each of several pairs of objects or people where the pairing is based on some natural relationship (2).
The basic computational formula for the Pearson product-moment correlation coefficient is:

\[ r = \frac{N\sum_{i=1}^{N}XY - (\sum_{i=1}^{N}X)(\sum_{i=1}^{N}Y)}{\sqrt{[N\sum_{i=1}^{N}X^2 - (\sum_{i=1}^{N}X)^2][N\sum_{i=1}^{N}Y^2 - (\sum_{i=1}^{N}Y)^2]}} \]

where

- \( N \) = number of pairs of scores;
- \( \sum_{i=1}^{N}XY \) = sum of the products of the paired scores;
- \( \sum_{i=1}^{N}X \) = sum of scores on one variable;
- \( \sum_{i=1}^{N}Y \) = sum of scores on the other variable;
- \( \sum_{i=1}^{N}X^2 \) = sum of the squared scores on the X variable;
- \( \sum_{i=1}^{N}Y^2 \) = sum of the squared scores on the Y variable.

The data processing included calculation of single and squared multiple correlations, and all correlations were tested for significance. The statistical computations were performed at the computer center at North Texas State University.

In a typical squared multiple correlational situation, the first set of numbers represented measures on a criterion variable, and the other two sets of numbers are measures on predictors (2). The squared multiple correlation coefficient between the criterion variable and the two predictor variables gave an indication of the degree to which the combined predictors correlated with the criterion measure.
The basic computational formula for the multiple correlation is:

\[ R_{1.23} = \sqrt{\frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}}, \]

where

- \( R \) = multiple correlation coefficient;
- \( 1 \) = the criterion variable (job performance);
- \( 2 \) = the first predictor;
- \( 3 \) = the second predictor;

- \( r_{12} \) = the correlation coefficient between the criterion variable and the first predictor;
- \( r_{13} \) = the correlation coefficient between the criterion variable and the second predictor;
- \( r_{23} \) = the correlation coefficient between the first predictor and the second predictor.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

ANALYSIS OF THE DATA

The statistical analysis of the data collected on ninety-seven mentally retarded students who received vocational training from the vocational program at the Denton State School in 1974 is presented in this chapter. These data include six variables for each of the participants in this study. The results of the analyses are discussed as they apply to the answers to the research questions selected for investigation in this study.

The scores on the various tests were organized in such a manner that enabled them to be subjected to specific analyses. The means, ranges, and standard deviations for job performance, adaptive behaviors, impulse control, responsible behaviors, intelligence quotient, and duration of institutionalization are descriptively reported.

Next, first-order coefficients of correlations were utilized to determine the relationship between each of the pairs of selected variables. Third, all possible combinations of the five predictor variables were subjected to multiple-correlation analysis in which all the models were compared to zero to determine whether they had greater than chance significance in the prediction of job performance.
The nature of the research design required the use of a multiple-correlation technique which would accommodate several predictor variables being used to predict job performance of the mentally retarded student at Denton State School. The multiple correlation procedure included the computation of means, standard deviations, simple correlations (r), squared multiple correlations (R²), probability values, error sum of squares, degrees of freedom, the change in the squared multiple correlations from the restricted model to zero correlation or the full model, and an analysis of variance to determine the level of significance of each variable as a predictor.

The means, ranges, and standard deviations for all five predictor variables and for the criterion are found in Table I. The high and low scores are also presented in Table I.

Population Profile

The highest score a mentally retarded student received on the job performance scale which was reported by the work supervisors was 54, and the lowest score received was 11; consequently, the range was 44. The mean was 35.546, and the standard deviation was 6.915.

The highest score received for adaptive behaviors was 40 and the lowest score received was 12; therefore, the range was 29. The mean for adaptive behaviors was 33.433, and the standard deviation was 5.142.
### TABLE I

RANGE, MEAN, AND STANDARD DEVIATION FOR FIVE PREDICTOR VARIABLES AND JOB PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>High Score</th>
<th>Low Score</th>
<th>Range</th>
<th>Mean</th>
<th>SD*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Performance</td>
<td>54</td>
<td>11</td>
<td>44</td>
<td>35.546</td>
<td>6.915</td>
</tr>
<tr>
<td>Adaptive Behaviors</td>
<td>40</td>
<td>12</td>
<td>29</td>
<td>33.433</td>
<td>5.142</td>
</tr>
<tr>
<td>Impulse Control</td>
<td>40</td>
<td>10</td>
<td>31</td>
<td>29.000</td>
<td>5.998</td>
</tr>
<tr>
<td>Responsible Behaviors</td>
<td>32</td>
<td>4</td>
<td>29</td>
<td>18.990</td>
<td>6.396</td>
</tr>
<tr>
<td>Intelligence Quotient</td>
<td>84</td>
<td>32</td>
<td>53</td>
<td>56.062</td>
<td>10.936</td>
</tr>
<tr>
<td>Length of Institutionalization</td>
<td>5586</td>
<td>520</td>
<td>5067</td>
<td>3762.598</td>
<td>1431.714</td>
</tr>
</tbody>
</table>

*SD = Standard Deviation.
The highest score received for impulse control by one of the mentally retarded students in this study was 40, and the lowest score received was 10; thus, the range was 31. The mean for impulse control was 29.000, and the standard deviation was 5.998.

The highest score received for responsible behaviors was 32, and the lowest score was 4; consequently, the range for responsible behaviors was 29. The mean was 18.990, and the standard deviation was 6.396.

The highest intelligence quotient of the mentally retarded students involved in this study was 84; the lowest intelligence quotient was 32; the range was 53; the mean was 56.062; and the standard deviation was 10.936.

The greatest length of institutionalization of any of the mentally retarded students in the study was 5,586 days, and the shortest length of institutionalization was 520 days. The standard deviation was 1,431.714 days; the mean was 3,762.598; and the range was 5,067.

Table II consists of the intercorrelations between the six variables in the study. The simple Pearson product-moment correlations showing the correlation of each variable with the other variables are presented in this table.

Table II reveals the correlation between job performance and intelligence quotient to be .22, which is significant at the .05 level. The correlation between impulse
TABLE II

PEARSON PRODUCT-MOMENT CORRELATIONS

<table>
<thead>
<tr>
<th></th>
<th>Job Performance</th>
<th>Adaptive Behaviors</th>
<th>Impulse Control</th>
<th>Responsible Behaviors</th>
<th>Intelligence Quotient</th>
<th>Length of Institutionalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Performance</td>
<td>1.00</td>
<td>0.02</td>
<td>0.12</td>
<td>0.01</td>
<td>0.22</td>
<td>-0.02</td>
</tr>
<tr>
<td>Adaptive Behaviors</td>
<td>0.02</td>
<td>1.00</td>
<td>0.31</td>
<td>0.05</td>
<td>-0.00</td>
<td>0.15</td>
</tr>
<tr>
<td>Impulse Control</td>
<td>0.12</td>
<td>0.31</td>
<td>1.00</td>
<td>0.14</td>
<td>-0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Responsible Behaviors</td>
<td>0.01</td>
<td>0.05</td>
<td>0.14</td>
<td>1.00</td>
<td>-0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>Intelligence Quotient</td>
<td>0.22</td>
<td>-0.00</td>
<td>-0.03</td>
<td>-0.08</td>
<td>1.00</td>
<td>-0.16</td>
</tr>
<tr>
<td>Length of Institutionalization</td>
<td>-0.02</td>
<td>0.15</td>
<td>0.03</td>
<td>0.10</td>
<td>-0.16</td>
<td>1.00</td>
</tr>
</tbody>
</table>
control and adaptive behaviors was the highest correlation at .31 in the study. This correlation was also significant at the .05 level.

The multiple-correlation technique was utilized to determine the best predictors of job performance. The possible combination of the five predictor variables totaled thirty-one, including the full model. The full model was also correlated with zero to determine if there was a better than chance possibility of determining job performance.

In models two through six, each of the five predictor variables was examined to determine its unique contribution in the prediction of job performance. Models seven through thirty-one are the possible combinations of the five predictor variables in relation to their prediction of job performance.

Table III contains the squared multiple correlations ($R^2$), the probability value, the degrees of freedom, the error sum of the squares, the change in the multiple correlation from the full to the restricted models ($\Delta R^2$), and indicates which variables are in the different models. In the restricted variable column, variable two represents adaptive behaviors; variable three represents impulse control; variable four represents responsible behaviors; variable five represents intelligence quotient; and variable six represents length of institutionalization.
### Table III

**Multiple Correlation Data for the Test of Significance of a Difference from the Full Model**

<table>
<thead>
<tr>
<th>Restricted Variables</th>
<th>R²</th>
<th>F-Ratio</th>
<th>Probability</th>
<th>Degrees of Freedom</th>
<th>Error Sum of Squares</th>
<th>Change in R² From Full Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>2,3,4,5,6</td>
<td>0.0650</td>
<td>1.26</td>
<td>0.2854</td>
<td>5/92</td>
<td>4291.86</td>
</tr>
<tr>
<td>Model 10</td>
<td>2,3,5,6</td>
<td>0.0648</td>
<td>0.01</td>
<td>0.9044</td>
<td>1/92</td>
<td>4292.48</td>
</tr>
<tr>
<td>Model 27</td>
<td>2,3,4,5</td>
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<td>0.8760</td>
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<td>4292.90</td>
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<tr>
<td>Model 18</td>
<td>2,3,5</td>
<td>0.0646</td>
<td>0.02</td>
<td>0.9850</td>
<td>2/92</td>
<td>4293.35</td>
</tr>
<tr>
<td>Model 28</td>
<td>3,4,5,6</td>
<td>0.0642</td>
<td>0.08</td>
<td>0.7811</td>
<td>1/92</td>
<td>4295.37</td>
</tr>
<tr>
<td>Model 20</td>
<td>3,4,5</td>
<td>0.0641</td>
<td>0.04</td>
<td>0.9575</td>
<td>2/92</td>
<td>4295.92</td>
</tr>
<tr>
<td>Model 26</td>
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<td>0.04</td>
<td>0.9576</td>
<td>2/92</td>
<td>4295.92</td>
</tr>
<tr>
<td>Model 12</td>
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<td>0.0640</td>
<td>0.03</td>
<td>0.9915</td>
<td>3/92</td>
<td>4296.36</td>
</tr>
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<td>Model 29</td>
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<td>1.66</td>
<td>0.1983</td>
<td>1/92</td>
<td>4369.19</td>
</tr>
<tr>
<td>Model 22</td>
<td>4,5,6</td>
<td>0.0479</td>
<td>0.84</td>
<td>0.5604</td>
<td>2/92</td>
<td>4369.97</td>
</tr>
<tr>
<td>Model 23</td>
<td>2,4,5</td>
<td>0.0479</td>
<td>0.84</td>
<td>0.5613</td>
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<td>4370.16</td>
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<tr>
<td>Model 14</td>
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<td>0.6421</td>
<td>3/92</td>
<td>4371.27</td>
</tr>
<tr>
<td>Model 25</td>
<td>2,5,6</td>
<td>0.0473</td>
<td>0.87</td>
<td>0.5733</td>
<td>2/92</td>
<td>4372.75</td>
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<tr>
<td>Model 9</td>
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<td>0.58</td>
<td>0.6324</td>
<td>3/92</td>
<td>4373.32</td>
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<tr>
<td>Model 16</td>
<td>5,6</td>
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<td>0.59</td>
<td>0.6303</td>
<td>3/92</td>
<td>4373.77</td>
</tr>
<tr>
<td>Model 5</td>
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<td>0.44</td>
<td>0.7792</td>
<td>4/92</td>
<td>4374.61</td>
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<tr>
<td>Model 31</td>
<td>2,3,4,6</td>
<td>0.0163</td>
<td>4.79</td>
<td>0.0293</td>
<td>1/92</td>
<td>4515.17</td>
</tr>
<tr>
<td>Model 19</td>
<td>2,3,6</td>
<td>0.0162</td>
<td>2.40</td>
<td>0.0946</td>
<td>2/92</td>
<td>4515.52</td>
</tr>
<tr>
<td>Model 21</td>
<td>3,4,6</td>
<td>0.0159</td>
<td>2.41</td>
<td>0.0932</td>
<td>2/92</td>
<td>4517.02</td>
</tr>
<tr>
<td>Model 13</td>
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<td>0.0158</td>
<td>1.62</td>
<td>0.1907</td>
<td>3/92</td>
<td>4517.40</td>
</tr>
<tr>
<td>Model 7</td>
<td>2,3</td>
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<td>1.62</td>
<td>0.1898</td>
<td>3/92</td>
<td>4517.92</td>
</tr>
<tr>
<td>Model 17</td>
<td>2,3,4</td>
<td>0.0157</td>
<td>2.42</td>
<td>0.0925</td>
<td>2/92</td>
<td>4517.75</td>
</tr>
<tr>
<td>Model 11</td>
<td>3,4</td>
<td>0.0152</td>
<td>1.63</td>
<td>0.1858</td>
<td>3/92</td>
<td>4520.35</td>
</tr>
<tr>
<td>Model 3</td>
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<td>1.23</td>
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<td>4/92</td>
<td>4520.53</td>
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<tr>
<td>Model 10</td>
<td>2,6</td>
<td>0.0009</td>
<td>2.10</td>
<td>0.1040</td>
<td>3/92</td>
<td>4586.07</td>
</tr>
<tr>
<td>Model 24</td>
<td>2,4,6</td>
<td>0.0009</td>
<td>3.15</td>
<td>0.0461</td>
<td>2/92</td>
<td>4585.84</td>
</tr>
<tr>
<td>Model 6</td>
<td>6</td>
<td>0.0005</td>
<td>1.59</td>
<td>0.1835</td>
<td>4/92</td>
<td>4587.83</td>
</tr>
<tr>
<td>Model 15</td>
<td>4,6</td>
<td>0.0005</td>
<td>2.11</td>
<td>0.1026</td>
<td>3/92</td>
<td>4587.52</td>
</tr>
<tr>
<td>Model 8</td>
<td>2,4</td>
<td>0.0004</td>
<td>2.12</td>
<td>0.1018</td>
<td>3/92</td>
<td>4588.41</td>
</tr>
<tr>
<td>Model 2</td>
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<td>1.59</td>
<td>0.1821</td>
<td>4/92</td>
<td>4588.85</td>
</tr>
<tr>
<td>Model 4</td>
<td>4</td>
<td>0.0001</td>
<td>1.60</td>
<td>0.1811</td>
<td>4/92</td>
<td>4589.34</td>
</tr>
</tbody>
</table>
Table III shows the full model had an F-ratio which was 1.26; the probability value was .2854; the degrees of freedom were 5/92; the squared multiple correlation was .0650; the error sum of the squares was 4,291.86; and the change in the squared multiple correlation from the full model to zero was .0650. The full model had the highest squared multiple correlation. The lowest squared multiple correlation was .0001 which was found in model four.

The highest F-ratio was 4.79 in model thirty-one which was for intelligence quotient, and the next highest F-ratio was found in model twenty-four for the combination of impulse control and intelligence quotient. The probability value for model thirty-one was .0293, and the probability value for model twenty-four was .0461; these were the only models which were found to have reached the .05 level of significance.

The F-ratio for models seventeen (intelligence quotient and duration of institutionalization); nineteen (intelligence quotient and responsible behaviors); and twenty-one (adaptive behaviors and intelligence quotient) reached the .09 level of significance in the study. The F-ratio for model seventeen was 2.42, and the probability value was .0925; the F-ratio for model nineteen was 2.40, and the probability value was .0946; and the F-ratio for model twenty-one was 2.41, and the probability value was .0932.
Model eight has a combination of impulse control, intelligence quotient, and duration of institutionalization; its F-ratio of 2.12 had a probability value of .1018. The combination of impulse control, intelligence quotient, and responsible behaviors constituted model ten; the probability value for this model was .1040 for an F-ratio of 2.10. Adaptive behaviors, impulse control, and intelligence quotient were used in model fifteen; this model had a probability value of .1026 for an F-ratio of 2.11. Models eight, ten, and fifteen produced F-ratios which approached the .10 level of significance in this study.

Model one (see Table IV) had a squared multiple correlation score of .0650 which was the highest value among the squared multiple correlations. Model one was a combination of adaptive behaviors, impulse control, responsible behaviors, intelligence quotient, and duration of institutionalization. The lowest squared multiple correlation value was found in model four (.0001). The range for the squared multiple correlation scores was .0649, from .0001 to .0650.

Two models, model twelve and model five, were found to be significant beyond the .05 level of significance. Model five contained the variable of intelligence quotient, and model twelve was the combination of impulse control and intelligence quotient. The F-ratio for model five was 4.68, and the probability value was .0310. Model twelve had an F-ratio of 3.21 and a probability value of .0434.
TABLE IV
MULTIPLE CORRELATION DATA FOR THE TEST OF SIGNIFICANCE
OF A DIFFERENCE FROM ZERO CORRELATION

<table>
<thead>
<tr>
<th>Variables Present</th>
<th>$R^2$</th>
<th>F-ratio</th>
<th>Probability</th>
<th>Degrees of Freedom</th>
<th>Error Sum of Squares</th>
<th>Change in $R^2$ from zero</th>
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</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>2,3,4,5,6</td>
<td>0.0650</td>
<td>1.26</td>
<td>0.2854</td>
<td>5/91</td>
<td>4391.86</td>
</tr>
<tr>
<td>Model 20</td>
<td>3,4,5</td>
<td>0.0641</td>
<td>2.12</td>
<td>0.1013</td>
<td>3/93</td>
<td>4295.92</td>
</tr>
<tr>
<td>Model 12</td>
<td>3,5</td>
<td>0.0640</td>
<td>3.21</td>
<td>0.0434</td>
<td>2/94</td>
<td>4296.36</td>
</tr>
<tr>
<td>Model 29</td>
<td>2,4,5,6</td>
<td>0.0481</td>
<td>1.16</td>
<td>0.3322</td>
<td>4/92</td>
<td>4369.19</td>
</tr>
<tr>
<td>Model 22</td>
<td>4,5,6</td>
<td>0.0479</td>
<td>1.56</td>
<td>0.2027</td>
<td>3/93</td>
<td>4369.97</td>
</tr>
<tr>
<td>Model 23</td>
<td>4,5,6</td>
<td>0.0477</td>
<td>2.35</td>
<td>0.0987</td>
<td>2/94</td>
<td>4371.27</td>
</tr>
<tr>
<td>Model 25</td>
<td>2,5,6</td>
<td>0.0473</td>
<td>1.34</td>
<td>0.2079</td>
<td>3/93</td>
<td>4372.75</td>
</tr>
<tr>
<td>Model 9</td>
<td>2,5</td>
<td>0.0472</td>
<td>2.33</td>
<td>0.1009</td>
<td>2/94</td>
<td>4373.32</td>
</tr>
<tr>
<td>Model 16</td>
<td>5,6</td>
<td>0.0471</td>
<td>2.32</td>
<td>0.1014</td>
<td>2/94</td>
<td>4373.77</td>
</tr>
<tr>
<td>Model 5</td>
<td>5</td>
<td>0.0469</td>
<td>4.68</td>
<td>0.0310</td>
<td>1/95</td>
<td>4374.61</td>
</tr>
<tr>
<td>Model 31</td>
<td>2,3,4,6</td>
<td>0.0163</td>
<td>0.38</td>
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<td>4515.17</td>
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<td>Model 19</td>
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<td>4517.52</td>
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<td>Model 21</td>
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<tr>
<td>Model 13</td>
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<td>0.75</td>
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<td>2/94</td>
<td>4517.40</td>
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<tr>
<td>Model 7</td>
<td>2,3</td>
<td>0.0157</td>
<td>0.75</td>
<td>0.5207</td>
<td>2/94</td>
<td>4517.92</td>
</tr>
<tr>
<td>Model 17</td>
<td>2,3,4</td>
<td>0.0157</td>
<td>0.50</td>
<td>0.6902</td>
<td>3/93</td>
<td>4517.75</td>
</tr>
<tr>
<td>Model 11</td>
<td>3,4</td>
<td>0.0152</td>
<td>0.72</td>
<td>0.5084</td>
<td>2/94</td>
<td>4520.35</td>
</tr>
<tr>
<td>Model 3</td>
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<td>4520.53</td>
</tr>
<tr>
<td>Model 10</td>
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<td>0.0099</td>
<td>0.04</td>
<td>0.9604</td>
<td>2/94</td>
<td>4586.07</td>
</tr>
<tr>
<td>Model 24</td>
<td>2,4,6</td>
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<td>0.03</td>
<td>0.9930</td>
<td>3/93</td>
<td>4585.84</td>
</tr>
<tr>
<td>Model 6</td>
<td>6</td>
<td>0.0100</td>
<td>0.05</td>
<td>0.8257</td>
<td>1/95</td>
<td>4587.83</td>
</tr>
<tr>
<td>Model 15</td>
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<td>0.03</td>
<td>0.9751</td>
<td>2/94</td>
<td>4587.52</td>
</tr>
<tr>
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<td>0.02</td>
<td>0.9843</td>
<td>2/94</td>
<td>4588.41</td>
</tr>
<tr>
<td>Model 2</td>
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<td>0.02</td>
<td>0.8699</td>
<td>1/95</td>
<td>4588.85</td>
</tr>
<tr>
<td>Model 4</td>
<td>4</td>
<td>0.0001</td>
<td>0.01</td>
<td>0.9154</td>
<td>1/95</td>
<td>4589.54</td>
</tr>
</tbody>
</table>
The F-ratio for model fourteen (responsible behaviors and intelligence quotient) and model eighteen (adaptive behaviors, impulse control, and intelligence quotient) reached the .10 level of significance. The probability value for the F-ratio of model fourteen was .0987, and the probability value for the F-ratio of model eighteen was .0988.

Four models had F-ratios which approached the .10 level of significance; these four were models nine, sixteen, twenty, and twenty-six. Model nine was a combination of adaptive behaviors and intelligence quotient and had a probability value of .1009. Model sixteen was a combination of intelligence quotient and duration of institutionalization and had a probability value of .1014. Model twenty was a combination of impulse control, responsible behaviors, and intelligence quotient and had an F-ratio of 2.12 with a probability value of .1013. Model twenty-six, which was a combination of impulse control, intelligence quotient, and duration of institutionalization, had an F-ratio of 2.12 and a probability value of .1013.

Summary of the Findings

The findings of the study are reported in terms of contribution to answers to the following research questions:

1. Is there a relationship between adaptive behaviors and job performance?
The findings of the study indicated adaptive behaviors had a correlation of only .02 to job performance. The F-ratio of .08 and the probability value of .7811 indicated the predictability of the variable, adaptive behaviors, was not significantly different from the full model. The F-ratio of .02 and the probability value of .8699 indicated the predictability of this variable was not significantly different from chance. The adaptive behaviors score was thus found to be of no value as a predictor of job performance.

2. Is there a relationship between impulse control and job performance?

The results revealed that the correlation between impulse control and job performance was only .12. The probability value of .2277 and the F-ratio of 1.46 indicated the predictability of this variable was not significantly better than chance. The F-ratio of 1.66 and .1983 probability value indicated the predictability of impulse control score was not significantly different from that of the full model. Consequently, the predictive value of the impulse control score was found to be negligible.

3. Is there a relationship between responsible behaviors and job performance?

The F-ratio of .01 and the probability score of .9044 indicated the responsible behaviors score was not significantly different from that of the full model as a
predictor. The F-ratio of .01 and the probability value of .9154 indicated this variable was not significantly better than chance as a predictor. The F-ratio of .01 and the probability value of .9044 indicated as a predictor, this variable was not significantly different from the full model. The simple Pearson product-moment correlation was only .01. This variable, therefore, was found to have no predictive value.

4. Is there a relationship between intelligence quotient and job performance?

The findings indicated a correlation of .22 between intelligence and job performance. The F-ratio of 4.68 and the probability value of .0310 indicated this variable had a predictive value that was significantly different from chance. The F-ratio of 4.79 and the probability value of .0293 indicated this variable had a predictive value that was not significantly different from that of the full model. This variable has some predictive validity, but it is low.

5. Is there a relationship between duration of institutionalization and job performance?

The correlation between duration of institutionalization and job performance was only -.02. The F-ratio of .05 and the probability value of .8257 for this variable indicated its predictive value was not significantly better than chance. The F-ratio of .02 and the probability
value of .8760 indicated the predictability of this variable was not significantly different from that of the full model. Consequently, duration of institutionalization was found to be of no value as a predictor of job performance.

6. Is there a relationship between the combination of impulse control and adaptive behaviors and job performance?

The squared multiple correlation value was .0157, the F-ratio was .75, and the probability value was .5207 for this variable; its predictive value was not significantly better than chance. Also, the F-ratio of .84 and the probability value of .5604 indicated this combination had a predictability that was not significantly different from that of the full model. Because of these findings, the predictive value of this combination was concluded to be negligible.

7. Is there a relationship between the combination of adaptive behaviors and intelligence quotient and job performance?

The squared multiple correlation for this combination of predictors was .0472 in the test for a significant difference from zero correlation. Because of an F-ratio of 2.33 and a probability value of .1009, the predictability of the model was not found to be significantly different from zero correlation. The F-ratio of 2.41 and the
probability value of .0932 indicated the predictive value of this combination reached the .09 level of significance with relationship to the full model. The combination approached the .10 level of significance with relationship to zero correlation. This combination of factors did not have predictive validity.

8. Is there a relationship between the combination of impulse control and responsible behaviors and job performance?

The squared multiple correlation was found to be .0152, the F-ratio was .72, and the probability value was .5084 which indicated its predictability was not significantly better than chance. The F-ratio of .87 and the probability value of .5733 indicated this combination's predictive value was not significantly different from the full model. Consequently, no predictive value was found in this combination.

9. Is there a relationship between the combination of adaptive behaviors and responsible behaviors and job performance?

The squared multiple correlation coefficient for this combination was .0004, the F-ratio was .02, and the probability value was .9843 which had a predictive value not significantly better than chance. The F-ratio of .04 and the probability value of .9576 indicated the predictive value of this combination was not significantly
different from the full model. Thus, this combination was found to have no predictive value.

10. Is there a relationship between the combination of responsible behaviors and duration of institutionalization and job performance?

The squared multiple correlation coefficient for this combination was .0646, the F-ratio was .02, and the probability value was .9850 which indicated the predictive value of this combination was negligible in the test for significant difference from that of the full model. This combination was found not to have a predictive value that was significantly better than chance because of an F-ratio of .03 and a probability value of .9751.

11. Is there a relationship between the combination of impulse control, responsible behaviors, and intelligence and job performance?

The squared multiple correlation coefficient for this combination in the test for significant difference from zero correlation was .0641, the F-ratio was 2.12, and the probability value was .1013 which indicated the level of significance approached .10. The F-ratio of 2.10 and the probability value of .1040 in the test for significant difference from the full model indicated this combination had a predictive value which approached the .10 level of significance.
CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION,
AND RECOMMENDATIONS

This study was an investigation of the relationship of impulse control, responsible behaviors, adaptive behaviors, length of institutionalization, and intelligence quotient to job performance of mentally retarded students at the Denton State School, Denton, Texas. Vocational educators and the research committee at the Denton State School were consulted in an effort to find a research area and variables which would yield results that would be of value to them in their work to assist in the vocational development of mentally retarded students. One's ability to perform on the job was of obvious importance, and the other variables chosen were believed to have significant importance in the prediction of job performance. This study was designed to determine whether these assumptions are valid.

The research was proposed to the research committee and vocational director at the Denton State School. They accepted the proposal and stated the anonymity of each mentally retarded student must be retained in order to remain within the bounds of the rights of privacy laws.
The literature reviewed verified social behavior can be developed, organized, and presented in a curriculum unit that will meet the needs of the mentally retarded student and increase his ability to function in an employment setting. Investigators encouraged increased concern centered around the social-emotional interpersonal factors related to the work of mentally retarded students because of their need to develop behavior patterns which are socially acceptable to the community. Vocational programs have been identified as an educational setting in which the mentally retarded student can realize the social skills and responsibilities he will encounter in a realistic work setting.

Intelligence as a valid predictor of job performance was given varied estimates of importance in the literature. Some researchers stated Wechsler instruments were effective measures of job performance. Others stated there is a low correlation between IQ and job performance, and IQ is not a reasonably good measure of expectation of vocational achievement.

Length of institutionalization was found to have value in the prediction of job performance. Researchers reported the routine and regularity of life in the institution provided environmental control which assisted the development of appropriate vocational behaviors. The literature revealed longer prior institutionalization
increased potential for successful completion of vocational training as well as higher job performance.

The Problem

The problem of this study was to investigate the relationship of the variables of impulse control, adaptive behaviors, responsible behaviors, intelligence, and duration of institutionalization to job performance of the mentally retarded students at Denton State School.

The Purposes

The purposes of this study were:

1. to ascertain the correlation of the variables of adaptive behaviors, responsible behaviors, impulse control, duration of institutionalization, and intelligence quotient to job performance of the mentally retarded student at Denton State School;

2. to determine which factor or combination of factors would be most useful for predicting job performance effectiveness of the mentally retarded student.

Research Questions

The following research questions were formulated to carry out the purposes of this study:

1. Is there a relationship between adaptive behaviors and job performance?

2. Is there a relationship between impulse control and job performance?
3. Is there a relationship between responsible behaviors and job performance?

4. Is there a relationship between intelligence and job performance?

5. Is there a relationship between duration of institutionalization and job performance?

6. Is there a relationship between the combination of impulse control and adaptive behaviors and job performance?

7. Is there a relationship between the combination of adaptive behaviors and intelligence and job performance?

8. Is there a relationship between the combination of impulse control and responsible behaviors and job performance?

9. Is there a relationship between the combination of adaptive behaviors and responsible behaviors and job performance?

10. Is there a relationship between the combination of duration of institutionalization and responsible behaviors and job performance?

11. Is there a relationship between the combination of impulse control, responsible behaviors, and intelligence and job performance?

The Method

The ninety-seven mentally retarded students in this study were students at the Denton State School during the
year 1974. The criteria established for the selection of the participants in this study were each mentally retarded student had to have been in the vocational program during the year 1974, and he had to have scores recorded from taking the Behavioral Characteristics Performance Scale. Each had to have been placed in an employment setting after receiving vocational training in the vocational program at the Denton State School.

The mentally retarded students on the list were randomized, and numbers were given to each in order not to violate the rights of privacy laws and to retain the anonymity of each student. Research personnel at the Denton State School assigned these numbers on the data sheets.

The instruments utilized to meet the purposes of this study were the Behavioral Characteristics Performance Scale, the Wechsler Adult Intelligence Scale, and a job performance scale. The WAIS and the BCP were administered by professionals with experience and training in the administration of these instruments as a regular part of the testing evaluation at the Denton State School. The Behavioral Characteristics Performance Scale coordinator was responsible for the administration of the BCP, and a certified psychologist was responsible for the administration of the WAIS. The job performance scale was developed with the assistance of a panel of experts consisting of a counselor
with the Texas Rehabilitation Commission, the vocational
director at the Denton State School, a professor of
vocational-technical education at North Texas State
University, and a member of the vocational research
committee at Denton State School. This job performance
scale was sent to the job supervisors of the mentally
retarded students in this study who were asked to evaluate
the student on a scale from zero to five. On this job
performance scale, zero meant not applicable and five
meant excellent performance. The total score was used
for correlation purposes. The scores made by the mentally
retarded students on each of these instruments were
organized in such a manner that relationships of adaptive
behaviors, impulse control, duration of institutionaliza-
tion, responsible behaviors, and IQ to performance on the
job could be determined.

The statistical technique of the Pearson product-
moment correlation (r) and that of the squared multiple
correlation (R^2) were employed to answer the research
questions. Also, the means, standard deviations, prob-
ability, F-ratio, error sum of squares, degrees of
freedom, the change in the squared multiple correlation in
the restricted model from the full model, and the change in
the restricted model's squared multiple correlation
from zero correlation were reported.
The Pearson product-moment correlation was used to determine whether there was a relationship between two variables. The squared multiple correlation was used to determine the relationship between a restricted set of variables and either the full model or zero correlation. The F-ratio and the probability value were used to determine the level of significance of a variable or combination of variables; these values indicated whether the variable or combination of variables had a predictive value significantly different from the full model and whether there was a significance better than chance.

Results

Based on the statistical analysis of the data, the findings of the study are presented as follows:

1. The correlation between adaptive behaviors and job performance was .02. In the test for significant difference from the full model, the squared multiple correlation was found to be only .0642, the F-ratio was .08, and the probability value was .7811. In the test for significant difference from zero correlation, adaptive behaviors had a squared multiple correlation of .0002, an F-ratio of .02, and a probability value of .8699. From these findings, it was determined the relationship between adaptive behaviors and job performance was too low for predictive value.
2. The results revealed a correlation between impulse control and job performance of .12. The test for significant difference from zero correlation revealed a squared multiple correlation of only .0151, an F-ratio of 1.46, and a probability value of .2277. The F-ratio was 1.66, and the probability value was .1983 in the test of significant difference with the full model. Therefore, the findings indicated a negligible relationship between impulse control and job performance.

3. The correlation between responsible behaviors and job performance was found to be .01. The squared multiple correlation was only .0648, the F-ratio was .01, and the probability value was .9044 for responsible behaviors in the test for significant difference from the full model. In the test for significant difference from zero, the F-ratio was .01, and the probability value was .9154. Consequently, no correlation was found between responsible behaviors and job performance.

4. The Pearson product-moment correlation between intelligence quotient and job performance was .22. The test for significant difference from zero correlation revealed a squared multiple correlation of .0469, an F-ratio of 4.68, and a probability value of .0310. In the test for significant difference from the full model, the squared multiple correlation was found to be .0163,
the F-ratio was 4.79, and the probability value was .0293. Therefore, intelligence quotient had a better than chance probability value in the prediction of job performance. The intelligence quotient had some predictive validity, but it was low.

5. The findings indicated a correlation of -.02 between duration of institutionalization and job performance. The test for better than chance significance revealed a squared multiple correlation of only .0005, an F-ratio of .05, and a probability value of .9257. The test for significant difference from the full model revealed an F-ratio of .02, and a probability value of .9760. Therefore, the relationship between these two variables was found to be near zero.

6. For the combination of impulse control and adaptive behaviors, the squared multiple correlation was .0157, the F-ratio was .75, and the probability value was .5297 in the test for a significant difference from zero. The test for a significant difference from the full model revealed a squared multiple correlation of .0479, an F-ratio of .84, and a probability value of .5604. This combination was found to have no predictive value.

7. The results of the study revealed for the test of a significant difference from zero correlation a squared multiple correlation of .0472, an F-ratio of 2.33 and a
probability value of .1009. The test for significant difference from the full model indicated a squared multiple correlation of .0159, an F-ratio of 2.41, and a probability value of .0932. The combination of adaptive behaviors and intelligence quotient approached the .10 level of significance in the test for a significant difference from zero correlation; a .09 level of significance was found in the test for significant difference from the full model.

8. The combination of impulse control and responsible behaviors was found to have a squared multiple correlation of .0152, an F-ratio of .72, and a probability value of .5094 in the test for significant difference from zero correlation. In the test for significant difference from the full model, the F-ratio for this combination was .87, the squared multiple correlation was .0473, and the probability value was .5733. The relationship between this combination and job performance was therefore found to be negligible.

9. The test for significant difference from the full model for the combination of adaptive behaviors and responsible behaviors and job performance revealed a squared multiple correlation of .0641, an F-ratio of .04, and a probability value of .9576. The F-ratio was .02, and the probability value was .9843 in the test for a significant difference from zero correlation. The combination was found to have no predictive value.
10. The results revealed a squared multiple correlation of .0646, an F-ratio of .02, and a probability value of .9850 for the test of significant difference from the full model for the combination of responsible behaviors and duration of institutionalization. The test for significant difference from zero correlation for the combination revealed an F-ratio of .03, and a probability score of .9751. The findings indicated no predictive value for this combination from the data in the tests of significant difference.

11. The findings revealed a squared multiple correlation of .0642, an F-ratio of 2.12, and a probability score of .1013 for the combination of impulse control, responsible behaviors, and intelligence in the test for significant difference from zero correlation. The findings from the test for significant difference from the full model revealed an F-ratio of 2.10, and a probability value of .1040. Consequently, this combination approached the .10 level of significance.

12. In the test for significant difference from zero, the combination of adaptive behaviors, impulse control, and intelligence quotient was found to have a squared multiple correlation of .0646, an F-ratio of 2.14, and a probability value of .0988. Consequently, this combination approached the .10 level of significance in the test for significant difference from zero.
13. The combination of intelligence quotient and responsible behaviors had a squared multiple correlation of .0477, a probability value of .0987, and an F-ratio of 2.34 in the test for significant difference from zero. The combination, therefore, approached the .10 level of significance.

14. A squared multiple correlation of .0641, an F-ratio of 2.12, and a probability value of .1013 was found for the combination of impulse control, intelligence quotient, and duration of institutionalization in the test for significant difference from zero correlation. The .10 level of significance was therefore reached by this combination.

15. The squared multiple correlation of .0471, the F-ratio of 2.32, and the probability value of .1009 was found for the combination of intelligence quotient and duration of institutionalization in the test for significant difference from zero. Consequently, the .10 level of significance was approached by this combination.

16. The combination of impulse control and intelligence quotient in the test for a significant difference better than chance was found to have a squared multiple correlation of .0640, an F-ratio of 3.21, and a probability value of .0434. Thus, this combination was found to have some predictive validity, but it was low.
Conclusions

1. Intelligence quotient was the best single predictor of job performance of those variables included in the study.

2. The combination with the best predictive value of job performance was impulse control and intelligence quotient.

3. The variables included in this study (adaptive behaviors, impulse control, responsible behaviors, intelligence quotient, and duration of institutionalization), taken either singly or in combination, do not correlate sufficiently with job performance to be of value for predicting job performance.

Discussion

A single variable, intelligence quotient, was found to be a statistically significant predictor in this study. This significance implies the more intelligent mentally retarded student has a better probability of competent performance in the work setting than the less intelligent student. This finding in the present study was contrary to the reports made by Kennedy (5), Collman and Newlyn (3), Cowan and Goldman (4), Tizard (10), Bower (2), Pinkard (8), and Appell (1). They stated that intelligence quotient was not a valid guide in predicting the vocational success of the mentally retarded student.
It should be emphasized, however, that the correlation between intelligence and job performance in the present study was slight.

The staff at Lt. Joseph P. Kennedy School for Exceptional Children (6) stated that intelligence quotient was a poor indicator in a work setting. This report provides insight into why there was a small positive correlation of intelligence quotient to job performance in the present study. They stated that often the lower grade mentally retarded students in their study could be seen functioning more productively than their potentially more adequate peers because the latter were unable to invest themselves more completely in their work. The present study adds support to the findings of the study by Tobias and Gorelick (11), in which the researchers found a significant relationship between the Wechsler Adult Intelligence Scale IQ and vocational performance of the mentally retarded student. Also, the study is consistent with the reports by Shulman (9) and Peck (7) regarding intelligence. Shulman stated a clear understanding of intelligence was essential in a study to determine which characteristics of the mentally retarded student yield a high job performance. Peck reported intelligence quotient was a valid predictor of vocational performance.

Few significant relationships were found in this study. The major reason for this finding is hypothesized to be
the lack of validity in both the Job Performance Scale and the Behavioral Characteristic Performance Scale. The job performance instrument appears to have measured desirable attitudinal characteristics of the mentally retarded students in the employment settings rather than productivity, which is of major importance in an employment setting. The job skill factor on the Job Performance Scale was expected to provide data on the mentally retarded student's output ability in his employment setting. Although this factor measures dexterity, it does not provide an adequate measure of production rate of mentally retarded students. Consequently, the Job Performance Scale should be revised to determine the amount of output each mentally retarded student produces. With this added factor, the scale would more completely measure the mentally retarded student's job performance.

Research is not presently available on the validity of the Behavioral Characteristic Performance Scale; therefore, the possibility is present that the BCP does not measure the social behaviors in the study well enough. There is also the possibility that the variables taken from the BCP are not adequate to predict job performance.

Recommendations

The findings of this investigation suggest the following recommendations for further research:
1. Further investigation needs to be conducted using variables such as reasoning, listening skills, spelling, attention span, articulation, sensory perception, language development, writing, task completion, language comprehension, reading, practical math, or gross-motor performance as single and/or combination predictor variables in the prediction of job performance.

2. More research needs to be conducted to determine the best methods of teaching appropriate behaviors for effective job performance.

3. This study should be replicated using a larger population or a similar population at another institution to determine if the results of this study were reliable.

4. Further research needs to be conducted to develop an instrument which has validity in evaluating job performance.
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APPENDIX A

JOB PERFORMANCE SCALE

Please circle the appropriate number which correlates with the individual's job performance.

Example: If a person demonstrates average enthusiasm, then circle the number 3.

<table>
<thead>
<tr>
<th>Enthusiasm</th>
<th>EXCELLENT</th>
<th>ABOVE AVERAGE</th>
<th>AVERAGE</th>
<th>BELOW AVERAGE</th>
<th>POOR</th>
<th>NOT APPLICABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

| 1. Diligence        | 5         | 4             | 3       | 2             | 1    | 0              |
| 2. Job skill        | 5         | 4             | 3       | 2             | 1    | 0              |
| 3. Punctuality      | 5         | 4             | 3       | 2             | 1    | 0              |
| 4. Interpersonal relations | 5   | 4             | 3       | 2             | 1    | 0              |
| 5. Cheerfulness     | 5         | 4             | 3       | 2             | 1    | 0              |
| 6. Dependability    | 5         | 4             | 3       | 2             | 1    | 0              |
| 7. Enthusiasm       | 5         | 4             | 3       | 2             | 1    | 0              |
| 8. Personal grooming| 5         | 4             | 3       | 2             | 1    | 0              |
| 9. Self-discipline  | 5         | 4             | 3       | 2             | 1    | 0              |
| 10. Personal hygiene| 5         | 4             | 3       | 2             | 1    | 0              |
| 11. Self-concept    | 5         | 4             | 3       | 2             | 1    | 0              |
| 12. Initiative      | 5         | 4             | 3       | 2             | 1    | 0              |
APPENDIX B

The mentally retarded student received credit if he performed the behavior at each level and the number of credits were added to yield the score for each variable taken from the Behavioral Characteristic Performance Scale.

ADAPTIVE BEHAVIORS

<table>
<thead>
<tr>
<th>Identifying Behaviors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0  Looks at hands</td>
</tr>
<tr>
<td>2.0  Moves hands in front of face separately</td>
</tr>
<tr>
<td>3.0  Brings hands together in front of face,</td>
</tr>
<tr>
<td>looking at them</td>
</tr>
<tr>
<td>4.0  Plays with hands while looking at them</td>
</tr>
<tr>
<td>5.0  Puts hands in mouth</td>
</tr>
<tr>
<td>6.0  Tolerates new object's presence in room</td>
</tr>
<tr>
<td>7.0  Moves toward new object</td>
</tr>
<tr>
<td>8.0  Touches new object</td>
</tr>
<tr>
<td>9.0  Manipulates new object for short time</td>
</tr>
<tr>
<td>10.0 Uses object in usual manner, but exchanges it for another</td>
</tr>
<tr>
<td>11.0 Experiments with new object using more than one sense</td>
</tr>
<tr>
<td>12.0 Uses new object differently than other objects</td>
</tr>
<tr>
<td>13.0 Talks while playing</td>
</tr>
<tr>
<td>14.0 Uses new object for designed purposes</td>
</tr>
<tr>
<td>15.0 Engages in interaction(s) with another person</td>
</tr>
</tbody>
</table>
16.0 Role plays (e.g., tea parties, dress-up, play house).

17.0 Discusses possible new activities/tasks

18.0 Plays game by self—Always same game

19.0 Plays different games by self

20.0 Plays game with another person

21.0 Discusses previously mastered activities/tasks and relates them to new activities/tasks

22.0 Performs new activities/tasks when required/forced

23.0 Tries again when change or disappointment occurs if a recovery period has elapsed

24.0 Tries again when change or disappointment occurs if reassured

25.0 Remains calm if disappointment occurs and no remedy is possible (e.g., received no phone call, letter)

26.0 Changes routine when alternatives are presented—accepts change

27.0 Changes routine/tries new activities when reasons are explained

28.0 Tries again when change or disappointment occurs without a recovery period, reassurance, alternatives or reasons

29.0 Performs new activities/tasks voluntarily

30.0 Behaves according to peer group norm in moderately structured/defined situations

31.0 Follows class routine when there are changes in teacher's dress, hair, etc.

32.0 Performs activities/tasks in presence of or when led by new person (e.g., substitute teacher, classroom observer, volunteer, parent)

33.0 Follows class/school rules after two-day absence (e.g., weekend or illness)
34.0 Follows class/school rules after three-day absence (e.g., weekend or illness) 

35.0 Follows class/school rules at beginning and end of school week (e.g., Monday & Friday).

36.0 Independently tries out new activities, puts ideas or things into new combinations

37.0 Creates own task/activity with new object - uses object in different ways

38.0 Adjusts behavior to fit rules and routines of different situations (e.g., a friend's house, a restaurant, cafeteria)

39.0 Schedules own activities to fit within specified time frame

40.0 Behaves according to peer group norm in minimally structured or defined situations.

_________

**IMPULSE CONTROL**

**Identifying Behaviors**

1.0 Sits quietly for 30 seconds when group is listening to stories, music

2.0 Sits quietly for one minute when group is listening to stories, music

3.0 Takes turns in game activity 25% of time or less

4.0 Sits in seat, stands in line, etc., without fidgeting, moving for 25% or less of the activity

5.0 Sits quietly for more than one minute when group is listening to stories, music

6.0 Displays self-destructive behaviors 75 to 100% of baseline

7.0 Changes activity without emotional outburst when change cue is well defined (transition activity, bell)
8.0 Changes routine without emotional outbursts when alternatives are presented
9.0 Sits quietly for more than five minutes when group is listening to stories, music
10.0 Quiets down after active period (e.g., recess) if reminded frequently
11.0 Takes turns in game activity 25-50% of the time
12.0 Sits in seat, stands in line, etc., without fidgeting, moving for 25-50% of the activity
13.0 Withdraws or becomes verbally aggressive for short periods when scolded, criticized, teased
14.0 Displays self-destructive behavior 50-75% of baseline
15.0 Calls or acts out while raising hand for attention
16.0 Accepts change in routine without emotional outbursts when reasons are explained
17.0 Raises hand for attention
18.0 Sits quietly for more than ten minutes when group is listening to stories, music
19.0 Takes turns in game activity 50-75% of the time
20.0 Sits in seat, stands in line, etc., without fidgeting, moving for 50-75% of the activity
21.0 Sits quietly for a full period when group is listening to stories, music
22.0 Takes turns in game activity 75% or more of the time
23.0 Sits in seat, stands in line, etc., without fidgeting, moving 75% or more of activity
24.0 Displays self-destructive behavior 25-50% of baseline
25.0 Quiets down immediately after active period and awaits instructions
26.0 Leaves provoking situation
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.0</td>
<td>Controls physical responses when angered</td>
</tr>
<tr>
<td>28.0</td>
<td>Accepts most criticism with no emotional outburst</td>
</tr>
<tr>
<td>29.0</td>
<td>Changes activity without emotional outburst when change is announced</td>
</tr>
<tr>
<td>30.0</td>
<td>Displays self-destructive behaviors 0-25% of baseline</td>
</tr>
<tr>
<td>31.0</td>
<td>Displays affective behavior (e.g., laughing, crying) appropriate for the situation/place</td>
</tr>
<tr>
<td>32.0</td>
<td>Acts according to social rules in work and play situations. Does not cry, act out when loses game or does not gloat when wins</td>
</tr>
<tr>
<td>33.0</td>
<td>Avoids disruptive actions in public places (e.g., slamming doors, running up and down aisles)</td>
</tr>
<tr>
<td>34.0</td>
<td>Controls temper well: verbalized feelings in a manner acceptable to home, school, neighborhood, etc.</td>
</tr>
<tr>
<td>35.0</td>
<td>Accepts friendly teasing - smiles or laughs</td>
</tr>
<tr>
<td>36.0</td>
<td>Plays and works without interfering with or disrupting work of others</td>
</tr>
<tr>
<td>37.0</td>
<td>Recognizes own lack of self-control and works with others to improve self</td>
</tr>
<tr>
<td>38.0</td>
<td>Plans/considers action before carrying it out</td>
</tr>
<tr>
<td>39.0</td>
<td>Touches others in a manner suitable for the home, school, neighborhood, etc.</td>
</tr>
<tr>
<td>40.0</td>
<td>Maintains self-control when faced with failure, problems, disappointments</td>
</tr>
</tbody>
</table>

**RESPONSIBLE BEHAVIORS**

**Identifying Behaviors**

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Claims ownership of items and defends own possessions physically</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2.0</td>
<td>Claims ownership of items and defends own possessions verbally.</td>
</tr>
<tr>
<td>3.0</td>
<td>Follows directions/perform activities given by authority, teacher</td>
</tr>
<tr>
<td>4.0</td>
<td>Makes own decisions about activities with adult supervision</td>
</tr>
<tr>
<td>5.0</td>
<td>Follows previously defined rules and regulations when authority figure is present</td>
</tr>
<tr>
<td>6.0</td>
<td>Accepts or follows reasonable school authority or rules. If rules or authority viewed as unfair, then protests in an appropriate manner</td>
</tr>
<tr>
<td>7.0</td>
<td>Conforms to group decisions despite personal disappointment or disagreement.</td>
</tr>
<tr>
<td>8.0</td>
<td>Obey newly-delegated authority figure (e.g., follows directions of a substitute teacher)</td>
</tr>
<tr>
<td>9.0</td>
<td>Follows previously defined rules and regulations when authority figure is not physically present or near</td>
</tr>
<tr>
<td>10.0</td>
<td>Cooperates with teacher request for quiet, etc.</td>
</tr>
<tr>
<td>11.0</td>
<td>Returns objects or materials to their assigned or appropriate place</td>
</tr>
<tr>
<td>12.0</td>
<td>Treats others' property as he would his own</td>
</tr>
<tr>
<td>13.0</td>
<td>Behaves according to expressed or implied desires of others - is considerate</td>
</tr>
<tr>
<td>14.0</td>
<td>Volunteers for tasks - accepts responsibility</td>
</tr>
<tr>
<td>15.0</td>
<td>Performs assigned responsibilities</td>
</tr>
<tr>
<td>16.0</td>
<td>Performs undesirable task when task is restructured so as to be viewed as desirable (e.g., a game is made out of it)</td>
</tr>
<tr>
<td>17.0</td>
<td>Comments on work of others by bringing out good points or suggesting improvements - constructive criticism</td>
</tr>
<tr>
<td>18.0</td>
<td>Acts upon helpful criticism offered by authority (e.g., corrects mistakes, looks for other solutions, explains reasoning)</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
</tr>
<tr>
<td>19.0</td>
<td>Performs undesirable task when given choice of doing something less desirable in its place</td>
</tr>
<tr>
<td>20.0</td>
<td>Sacrifices immediate satisfaction on the promise of a later privilege - delayed reward</td>
</tr>
<tr>
<td>21.0</td>
<td>Performs undesirable task when payoff for task is increased</td>
</tr>
<tr>
<td>22.0</td>
<td>Organizes daily activities using lists, naming, etc.</td>
</tr>
<tr>
<td>23.0</td>
<td>Makes own decisions concerning activities with minimal adult supervision</td>
</tr>
<tr>
<td>24.0</td>
<td>Orders activities according to some rational priority</td>
</tr>
<tr>
<td>25.0</td>
<td>Schedules activities by time</td>
</tr>
<tr>
<td>26.0</td>
<td>Plans for future activities</td>
</tr>
<tr>
<td>27.0</td>
<td>Performs undesirable tasks when requested, even though obvious positive or negative consequences are absent</td>
</tr>
<tr>
<td>28.0</td>
<td>Plays active group games following rules (e.g., dodge-ball, circle games, jump-rope)</td>
</tr>
<tr>
<td>29.0</td>
<td>Plays simple table games following rules (e.g., cards, checkers, board games)</td>
</tr>
<tr>
<td>30.0</td>
<td>Behaves according to stated social/school rules in work and play situations</td>
</tr>
<tr>
<td>31.0</td>
<td>Persuades teacher or group to change activity in a manner appropriate for school/street situation</td>
</tr>
<tr>
<td>32.0</td>
<td>Behaves so as to conform to stated and implied rules of conduct for school/play/home/work situations</td>
</tr>
</tbody>
</table>
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