EFFECTS OF FRUSTRATION TOLERANCE TRAINING ON YOUNG INSTITUTIONALIZED RETARDED CHILDREN

DISSERTATION

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF EDUCATION

By

Jerry L. Landrum, B. B. A., M. S.
Denton, Texas

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CHAPTER I

PROBLEM

Introduction

One does not have to read many case histories or visit many special classes or institutions for the mentally retarded to be aware that emotional and behavioral problems are the rule rather than the exception with retardates. Indeed, mentally retarded children seem to be especially susceptible to emotional problems because of their mental limitations (13, p. 224).

Within institutions for the mentally retarded, instances of psychotic-like withdrawal, emotional outbursts, hyper-activity, harmful aggressiveness in peer relations, and exaggerated dependency needs are legion.

The concepts of failure, frustration, and frustration tolerance afford a common core around which the aforementioned behavioral problems can be examined. The mental retardates' ". . . deficiencies in judgment, in understanding of their environment, and in anticipation of the results of their behavior constantly lead them into situations in which they experience failure and punishment" (13, p. 224). That frustration results from this failure and punishment is in accord with the theories of frustration of Hull (7),

Sherman (19, 20), Britt and Janus (1), Rosenzweig (14), and Maslow (10).

A "failure set" (15, p. 537) and greatly lowered levels of aspiration (18) develop from these repeated failures, punishments, and frustrations resulting in pronounced emotional reactions (17), some manifestations of which are the earlier mentioned emotional outbursts, harmful aggressiveness in peer relations, withdrawal, and regression.

Systematic psychological experimentation on frustration actually dates from the works of Pavlov (12). In his conditioning of dogs, Pavlov found that some of the animals developed what he called "neurotic behavior" when forced to discriminate beyond their ability level. Later experimental works by Pavlov and others showed that several conditions elicited a frustration reaction resulting in a variety of behavior abnormalities. Some of these conditions were forcing the organism to discriminate conditioned stimuli to mutually antagonistic responses, substituting punishment for reward at the end of some response, and forcing the organism to continue in a discrimination task beyond its capacity.

Sherman (19) suggests that there is a frustration threshold which varies between organisms and that the most common reaction of animals to extreme frustration is a disruption of motivated activity or even total disorganization involving convulsive or paralytic reactions. Similarly, Rosenzweig (15) suggests a continuum of frustration tolerance

along which different individuals may fall, while Sargent (17) writes of inter- and intra-individual variation in response to frustrating experiences.

While individual responses to frustration may vary according to the situation, prolonged failure may result in a lowered ability to profit from experience. Robinson and Robinson (13, p. 337) discuss a "failure set" in retardates who have experienced prolonged failure in problem solving. To these authors (13, p. 337) training programs to eliminate "failure set" should be arranged so that children master easy tasks before encountering harder ones.

Another practical recommendation for reducing the impact of frustration and building a frustration tolerance is offered by McCandless (11). The child should be started with mild frustrations and moved toward more severe ones in order to teach him constructive ways of coping with failure and frustration. In an almost identical manner Thompson (23, p. 196) says that "The child develops frustration tolerance by the overcoming of a long series of minor frustrations to which he can adjust satisfactorily." Thompson (23) continued to say that prolonged unresolved frustrations will inevitably impede later psychological growth.

Keister and Updegraff (5) devised an experiment indicating that children who showed undesirable or immature responses in the face of failure could be made, by special training, to develop more desirable modes of response.

Davitz (3) designed a study which confirmed his hypothesis that aggressively trained children would behave more aggressively after frustration and that constructively trained children would behave more constructively after frustration.

In summary, frustration arises from inability to perform in a given situation, thresholds of frustration exist and in varying degrees for various individuals, modes of response to frustration vary within and between individuals, a "failure set" may begin to operate after prolonged failure, and intense frustration may induce total disorganization of behavior. Most important, the literature affords some promise that modification of behavior can take place with adequately developed training programs.

In spite of the intense interest and much investigatory work done on the concept of frustration during the two decades between 1930 and 1950, there has been a great lack of systematic attempts at devising methods of increasing frustration tolerance or improving resultant maladaptive behavior in human subjects. Counseling and psycho-therapy hold some promise, but they are ineffectual in reaching the great masses of individuals demonstrating nonintegrative reactions to frustration. Thus, it would appear useful to develop methods of increasing frustration tolerance and modifying the undesirable behaviors of retarded children so that their limitations are eliminated or minimized.

This being the case, how can the mental retardates' ability to deal effectively with difficult situations be increased? To what extent will training programs designed to increase frustration tolerance reduce behavioral problems?

Statement of the Problem

The major problem investigated was to ascertain the extent to which a training program designed specifically to increase frustration tolerance would reduce selected behavioral problems in institutionalized mentally retarded children. Of lesser importance was the problem of examining the extent to which the prescribed training program had differential effects on brain-injured and non-brain-injured retarded children.

Hypotheses

The major hypothesis tested was that frustration tolerance training would improve the mental retardate's behavior in the areas of distractibility, social isolation, dependency needs, proneness to emotional upset, and harmful aggressive behavior. The second hypothesis tested was that non-brain injured retardates would manifest greater reduction in these specific behaviors than would brain-injured mental retardates.

Definition of Terms

Distractibility.--This is defined as the ability to maintain attention or stick to a task at hand.

Social Isolation.--This is the extent to which a child is "in contact" with his peers and is shy, fearful, or rejected by them.

Inadequate Need for Independence.--This is the striving for autonomy shown by the child through imagination, resistance of adult offers of help, and pride of accomplishment.

Proneness to Emotional Upset.--This is defined as emotional responsiveness, as frequency of emotional outbursts, as emotional control.

Social Aggression.--This is a combination of aggressive intent and peer relations as shown by frequency of attack, bossiness, teasing, or provocation of others.

Frustration.--"Frustration is that condition which exists when a response toward a goal believed important and attainable by a given person suffers interference, resulting in a change in behavior characteristic for that person and situation" (25, p. 256).

Problem Behaviors.--Problem behaviors include those maladaptive overt behavioral responses which deviate significantly from the behavior of normal children of the same chronological age.

Brain Injury.--Injury to brain cells which destroys or permanently disorganizes functioning cell systems in the brain as evidenced by documented history of damage or neurologic symptoms that furnish certain evidence that damage has occurred.

Review of the Literature

A review of related literature is presented in five sections: (1) a psychoanalytic approach to frustration effects, (2) a behavioristic-psychoanalytic approach to frustration effects, (3) studies concerning modification of failure and frustration responses, (4) studies concerning social and material reinforcers, and (5) synthesis of these various sections.

Psychoanalytic Approach to Frustration Effects

The psychoanalytic definition of frustration is ". . . blocking of or interference with the satisfaction of an aroused need through some barrier or obstruction" (21, p. 50). Thus, there are two necessary conditions for frustration. The first is a drive, a need, or a tendency toward action. Secondly, the satisfaction of this need must be blocked, interferred with, or unavailable. A child's cry over dropping his lollipop might be interpreted as a reaction to frustration. His need for nourishment or enjoyment is blocked. A girl's doll is carried off by a frisky dog, interfering with her plans to play house. Or a duck hunter falls into the cold water and soaks his clothing thoroughly. As his chill increases, he is in a state of frustration because a need has been aroused and he has no immediate means of satisfying it. So, in frustration an aroused need and its blocked satisfaction are necessary ingredients.

Symonds (21, pp. 58-59) points out three characteristics of frustration, the first being the presence of postural tensions. The habitually frustrated person may be recognized by his rigidity or stiffness of posture and being. Increased muscular tensions resulting from the individual tendencies toward action may not be immediately drained off in a frustrating situation. If experience has not provided appropriate ways of meeting the situation, these muscular tensions become restless activity or perhaps even a chronic tension state.

Another characteristic of frustration is its unpleasantness. Just as the satisfaction of a need is pleasant, the thwarting of a need is unpleasant. This irritation gives rise to efforts to overcome the barrier presenting the frustration.

Also pointed out as a characteristic of frustration is its equation with punishment (21, p. 59). Frustration becomes equated with punishment by another person in infancy. The majority of people, according to this analytic interpretation, retain through adulthood this tendency of attributing frustration to personal origins. The confusion between people-frustration and external event-frustration arises from the helpless infant's relations with people, especially its mother. The crying infant interprets harshness, frowns, and abrupt handling as punishment for his own bad feelings and tends to interpret all external frustrations as being

like his own inner rebellious feelings. The child who tolerates frustration poorly and with vigorous reactions will usually see later frustrations as coming from persons, that is, punishment, and will tend to be poorly adjusted to reality.

Before considering the multiple responses to frustration within the psychoanalytic framework, a brief exploration of factors which determine these responses is necessary.

First among these factors is the strength of the drive. Symonds (21, p. 60) says that the "response to frustration becomes more severe in proportion to the strength of the drive or want which is frustrated." His example is of two children, one recently having had ice cream and the other long deprived. The first may be expected to have a weak drive to obtain an ice cream stick while the other may be expected to respond vigorously to any barrier in the way of his obtaining the desired ice cream.

Another response determining factor is the strength of the barrier. ". . . within limits, the stronger a barrier, the more intense the desire and efforts to overcome the barrier" (21, p. 60). Such proverbs, as "Grass on the other side of the fence is greener," "Nothing so good as forbidden fruit," and "Absence makes the heart grow fonder," are examples of this factor.

The availability of substitutes is still another factor determining frustration responses. Reverting to the earlier

illustration of the boy's wanting an ice cream stick, if he finds that his parents are planning a trip to the circus, the ice cream may lose its importance. So frustration responses may change according to substitute ways of reaching satisfaction or to the relative strength of other needs and the difficulty of their attainment.

Also affecting responses to frustration is the immediacy with which a barrier is presented. "If a barrier is like a fence which prevents a boy from reaching his ball, it is physical and real and immediately presented, and the reaction to it is more intense" (21, p. 61). However, rowing a boat up a bay against the tide is less real and is met with less vigorous efforts.

The cumulative effect of minor frustrations is another factor which in part determines the response to a particular frustrating situation. If previous frustration tensions have not been drained off in immediate activity, increased postural tensions result. Thus, we see the seeming over reaction to what on the surface appears to be a minor or immaterial frustration.

Other determining factors to frustration responses are the degree of emotional security and ego involvement, the momentum of a particular method of meeting a frustration, and the personality structure of the individual.

The following dynamisms of psychoanalytic theory briefly discussed by Thompson (23, pp. 189-190) are often used to explain the child's various responses to frustration.

Projection. The child unconsciously projects his own wishes or ideas onto objects or persons in the external world. For example, when Jimmy is denied some desirable goal by his teacher, he may say, "My mother and father don't like you very well." The psychological inferences drawn from young children's play behavior (Sears) are primarily based on this dynamism functioning in conjunction with the identification dynamism. The functioning of the projection dynamisms is often fairly obvious in young children's responses to frustration.

Introjection. The child unconsciously incorporates the demands of the external environment into his own personality. The wishes of his parents become his wishes--at least on the verbal level. The child who has been warned not to go swimming so early in the year may say, "I don't care to go swimming," as he is unbuttoning his shirt. The introjection dynamism can be employed to explain many apparently inconsistent aspects of children's varied responses to frustration.

Conversion. The child unconsciously develops some physiological malfunction that automatically removes him from a recurrent source of frustration. This dynamism helps to explain psychosomatic disturbances, and hysterical symptoms (functional blindness, paralysis, etc.).

Displacement. The child unconsciously displaces an unacceptable idea or action by another that is more acceptable. For example, when his mother says that he can't go out and play in the rain, Johnny kicks a chair rather than his mother.

Isolation. The child unconsciously deprives an unpleasant experience of its emotional content. The experience is not forgotten, but it no longer arouses unpleasant emotional feelings. For example, the child may perform ritualistic, or obsessive ceremonials when faced with a recurrent frustration, yet maintain a completely detached emotional mien.

Repression. The child unconsciously excludes unpleasant ideas from consciousness, i.e., he can no longer verbalize them. He can't remember that his mother told him to come home right after school. This is a fundamental dynamism in psychoanalytic theory. It does much to explain the frequently noted disparity between verbal and other-motor responses to a frustrating situation.

Reaction-formation. The child unconsciously responds to the demands of society by doing the opposite of what he was formerly inclined to do. After being consistently punished for trying to roll the new baby brother down the hall stairs, Johnny now says, "I love my baby brother very much." It now seems that Johnny can't do enough nice things for his baby brother. This dynamism has been well illustrated by Levy's demonstration that "reluctant" mothers often become overanxious about their infants after they are born.

Identification. The child unconsciously attempts to emulate the psychological characteristics of some person, or persons, to whom he is emotionally attached. This is a powerful dynamism in character and personality formation.

Sublimation. The child unconsciously denies the gratification of certain needs in favor of more socially acceptable ones. When Johnny feels like striking his father, he may go outside and chop wood furiously. (Note that this dynamism is related to displacement.)

Rationalization. The child unconsciously attempts to make his inconsistent behavior appear consistent both to himself and to others by verbalized explanations. For example, when Johnny gets a low grade in school, he may say, "The teacher doesn't like me," "I didn't understand the assignment," or some other similar rationalization.

This discussion is not intended to be exhaustive but rather is intended to cover the major principles relating to psychoanalytic interpretation of frustration.

Behavioristic-Psychoanalytic Approach to Frustration Effects

Dollard et al. (4) have developed a frustration-aggression hypothesis to explain the individual's multiple responses to frustration. This hypothesis explains the various overt responses to frustration on the basis of a single theoretical feature. The frustration-aggression hypothesis

is this: frustration always leads to some form of aggression. Frustration is defined as any goal-response which suffers interference. It follows, then, that any type of aggressive behavior presupposes the presence of frustration. Quickly pointed out, however, is that the aggression following the occurrence of frustration is not always immediately evident. This may be due to the early training that social human beings receive in repressing and restraining overt manifestations of aggressive reactions. This does not do away with or destroy the aggressive tendencies but only serves to delay or displace these reactions.

There are several fundamental concepts necessary to an understanding of the frustration-aggression hypothesis. The first of these concepts is instigation. "An instigator is some antecedent condition of which the predicted response is a consequence" (4, p. 3). This instigator may be immediately observable, such as the vendor's bell prior to the child's asking for an ice cream cone. Or, the instigator may only be inferred from the child's statement that he wants ice cream. The concept of instigator is much broader than that of stimulus, the latter referring only to energy acting upon a sense organ; whereas, the former refers to any antecedent condition, whether visual images, ideas, motives, or deprivations.

Instigation is a quantitative concept, according to Dollard et al. (4, p. 4), which implies strength. This

instigator strength may be measured against the degree to which it competes successfully with other instigators of incompatible responses.

Goal-response is another basic concept of the frustration-aggression hypothesis and is defined as an act which ends a predicted behavior sequence (4, p. 6). The hungry cat eats and ceases to seek food. As this behavior sequence is ended, the eating response is considered the goal-response but is, in this case, only temporary. If the instigator is repeated, the cat may be expected to perform the predicted sequence of responses a second time. He is likely to repeat previous behavior because of the reinforcing effect of goal responses.

If, in the above case, the expected sequence of responses is interrupted and the cat is prevented from eating, frustration results. According to Dollard et al. (4, p. 7) this ". . . interference with the occurrence of an instigated goal-response at its proper time in the behavior sequence is called a frustration."

Under the frustration-aggression hypothesis there are two things necessary for the existence of frustration. The first of these is that the organism could have been expected to perform certain behavioral responses. The second necessary condition is the prevention of these acts from occurring.

Another concept necessary to the frustration-aggression hypothesis is that of substitute responses. This is any action which reduced to some extent the strength of the instigation, the goal-response of which was prevented from occurring. Thus, the substitute response has one characteristic of the goal-response--the ability to reduce the strength of the instigator. An example of a substitute response given by Dollard et al. (4, p. 9) is smoking while awaiting a delayed luncheon.

Aggression is still another basic concept of the frustration-aggression hypothesis. Aggression is defined as any sequence of behavior, the goal-response of which is injury to person at whom it is directed. In the case of the delayed luncheon guest, subtle remarks about the host's manners would be aggressive acts. Aggression is the primary and characteristic reaction to frustration and will occur with the interference of goal-directed behavior. However, "Aggression is not always manifested in overt movements but may exist as the content of a phantasy or dream or even a well thought-out plan of revenge" (4, p. 10). This aggression may be directed at the object causing the frustration, it may be displaced to some innocent person or object, or it may be turned inward upon the self as in suicide or masochism. The aggression may be undirected toward persons or objects, as with the man who swears after striking his thumb with a hammer (4, p. 10).

In summary, the Dollard et al. (4) frustration-aggression hypothesis defined frustration as the condition existing when a goal-response suffers interference and defines aggression as an act, the goal-response of which is injury to some organism or organism substitute.

Dollar and associates (4) developed a provocative hypothesis which does seem to help explain many of the maladjustive behaviors of humans. One characteristic of the frustration-aggression hypothesis is its amenability to scientific investigation.

Failure and Frustration Response Modification Studies

An exhaustive search of the literature uncovered only two studies which systematically sought to modify responses to failure or frustration experiences. In the first, Keister and Updegraff (9) devised an experiment to determine whether children who showed undesirable or immature responses in the face of failure could be made, by special training, to develop more desirable modes of response. Her subjects were eighty-two nursery school children, three to six years of age, with a mean intelligence quotient of 122.

From a preliminary survey of suitable approaches to study failure reactions, Keister and Updegraff (9) concluded that in nursery school free play situations failure occurred too infrequently and motivation and task difficulty factors made the observational method inapplicable. Therefore, the

authors decided to present failure in experimental situations. Each child was presented with a difficult puzzle, a task which challenged his physical strength, and a third situation which offered social obstacles. The following criteria were used for selection of these tasks (9, p. 242):

1. They must be possible of accomplishment and yet of such difficulty that the child does not succeed immediately.

2. They must provide situations which are natural, in the sense that the difficulties are not obviously or forcibly imposed.

3. The average child should be able to see for himself that he has failed and to see in the situation some relation to himself as an instrument of his success or failure.

A system of controlled observation by minute intervals in each of these situations was the scheme for recording each child's behavior. These tasks and behavior recordings differentiated between those children giving undesirable or immature responses and those who responded in a more desirable manner. Fifteen of the original eighty-two subjects were judged as responding in an immature fashion according to certain criteria. It was the purpose of this experiment, then, to implement a training program to raise the responses of this immature group to a more desirable level. The basic assumption was that children could learn to meet difficult situations through special training which showed what types

The method of training was to present a series of problems which grew progressively more difficult as the program progressed. The training tasks reflected the following criteria (9, p. 245):

1. The tasks should be graded in difficulty so that the child experiences success in the earlier ones and gradually works up to problems which are difficult for him.

2. The later tasks must be of such difficulty that the child does not succeed immediately but is forced to persevere, to continue to try if he is to attain success.

3. The child must be able to see his progress and previous successes.

Two training situations evolved from these criteria. The first was a series of picture-puzzles. Story books were cut up into puzzles of four to six pictures. As the story was read, the child was presented puzzles to work, each gradually increasing in difficulty.

The second training task was to build a "block boy." Colored blocks were to be stacked upon each other in imitation of a drawn pattern hung on the wall.

The entire training program was administered by one person. Training period length varied from eight to thirty-three minutes, depending largely upon variations in behavior between children and task difficulty. It took approximately six weeks to administer all the training to the twelve children.

Two methods were used to study post-training behavior: first, retests of trained children were made on a similar puzzle box; second, retesting of twelve untrained children who had shown some undesirable behavior in the initial screening.

This study by Keister and Updegraff (9) showed remarkably different behavior of the trained children. Statistically significant differences in behavior were found in three behavior areas. It was concluded ". . . that a remarkable improvement was effected in the trained group."

Comparison of trained and untrained children also showed differences in favor of the trained children ". . . in spite of the fact that prior to training the difference lay in the opposite direction" (9, p. 248).

In summary, Keister and Updegraff (9, p. 248) determined that after a series of tasks gradually increasing in difficulty the trained children tried harder, showed more autonomy in problem solving, and showed no emotional behavior when again confronted with a failure situation.

There are three methodological aspects of this study which merit attention. First, the possibility of rater bias was introduced by having the entire program (test, training program, retest) carried out by the experimenter. This possible bias could be eliminated by having the child evaluation and child training done by different persons. Second, there was no attempt made to determine the effects of

one-to-one child-adult contact, aside from the training program. This raises the question of whether the training program alone was responsible for child behavior changes or if such changes could have resulted from the individual attention paid to the subjects in training. Third, as pointed out by Keister and Updegraff, ". . . it would be valuable to make observations in other situations and under circumstances of a more social nature" (9, p. 248). If the child's reactions to failure situations have been modified, is this change observable in his peer contacts and over-all behavior, or, is this change observable only in isolated experimental situations?

The second study concerning modification of failure or frustration responses was conducted by Davitz (3). His hypothesis was ". . . that a person's response to frustration will be affected by his previous experience in situations similar to that in which frustration is encountered" (3, p. 309). More specifically, he sought to determine the different effects of aggressive training and constructive training on the responses to frustration of forty children, age seven to nine.

Davitz (3) divided his study into four major sections: (a) free play; (b) training (constructive and aggressive); (c) frustration; and (d) free play. During the free play sessions pre- and post-frustration behavior was recorded on moving picture film for a period of eighteen minutes.

Constructive training consisted of seven thirty-minute group training sessions which encouraged and rewarded cooperativeness in constructing designated objects, such as murals and jigsaw puzzles. Constructiveness was praised and encouraged while all aggressive behavior was discouraged. Aggressive training was conducted in seven thirty-minute group sessions during which injury to some person or object was encouraged and praised. Games played during the aggressive training were called Cover the Spot, Scalp, and Break the Ball, all of which involved much aggressiveness and physical contact.

Pre- and post-frustration films were observed and written records of the behavior of each child were made. These protocols were independently ranked by four judges according to degree of aggressiveness.

In summary, Davitz (3, p. 314) concluded that under the conditions of his experiment ". . . previous training in situations similar to that in which frustration is encountered is a significant determinant of the organism's post-frustration behavior."

Though significant changes were made in group responses, there were individuals within each training group who did not change in the expected direction. Six children within the constructively trained group behaved more aggressively after frustration, and four children within the aggressively trained group behaved more constructively after frustration.

specialized training programs, the past history of the individual must be considered when evaluating his behavior after frustration.

Social and Material Reinforcement Studies

Research literature concerning social reinforcement, material reinforcement, token reward, and mental retardation is extensive. Those studies having direct bearing on the current research project are herein discussed.

Verbal urging and praise and their effects upon the acquisition of rotary pursuit skill in mental defectives were studied by Ellis and Distefano (5). Subjects in this study were twenty-eight male and female institutionalized mental retardates within the high trainable and educable range of abilities. Chronological age of the subjects ranged from twelve to twenty-one years with mean age approximately seventeen years.

Subjects were matched on Binet I. Q., sex, age, and previous pursuit rotor performance and were assigned to one of two groups. One group was designated as the "urged and praised" group, and the other as the control group. Each group received identical instructions for task performance. Treatment of subjects differed, however, during task performance. The "urged and praised" group received such comments as "That's fine," "You're doing good," "Try to beat your last score," and "Try to go higher this time." Only

positive statements were made to the subjects, with care taken to show no disappointment in subject performance.

Ellis and Distefano (5) used a matched groups t between the means which yielded results significant at the .001 level of confidence. The results showed that the verbally urged and praised group did significantly better than a control group on a pursuit rotor task.

Significantly, the authors (5) point out that perhaps mental retardates require more prompting for optimal performance than normal intelligence subjects.

Similar to the study of verbal urging and praise is an investigation by Rowley and Keller (16) concerning changes in children's verbal behavior as a function of social approval and anxiety. Subjects were fourth, fifth, and sixth grade students, ninety in number, with an I. Q. of 85 or above. The experimental task consisted of making up sentences using verbs on a stimulus card under which were printed six pronouns--I, we, he, she, they, and you.

There were three treatment groups:

1. Group VA, in which subject responses containing "I" or "we" were immediately followed by verbal approval, using a smile and the word "Good."

2. Group PMA, in which subject responses using "I" or "we" were immediately followed with physical movement, a vertical head movement, and a smile.

3. Group C, a control group in which the experimenter made no response following any of the subject's sentences.

Verbal conditioned response was acquired in both reinforcement groups ($p<.001$) with the verbal reinforcer being significantly more effective than physical movement alone. None of the subjects stated the contingency between response and reinforcement.

Terrell and Kennedy (22) studied discrimination learning and transposition in 160 elementary school children as a function of the nature of reward. The five reward conditions in this study were praise, reproof, candy, token, and control (light flash). The candy reward group learned significantly more rapidly than did any of the other groups. On the transposition test, the token-reward group was significantly superior.

The Goodenough Draw-A-Man Test was the task used by Hunt and Patterson (8) to measure the differential effects of two levels of motivation on mentally deficient children diagnosed as familial. Fifty institutionalized males, mean I. Q. 61, range, 30-80, with chronological age from seven through fourteen, mean 12-0, were subjects in this study. The levels of motivation were, first, promise of candy for compliance with instructions and, second, verbal urging plus promise of candy reward. Analysis of data from this experiment suggested that motivation with verbal urging was slightly more effective than material reinforcement which was not emphasized.

Hunt and Patterson (8) also compared the performance of brain-injured children and familially retarded children. This comparison suggested that other motivating influences can be used to improve performance of the familial child, such as establishing a strong teacher-child relationship. With brain-injured children, however, concrete reward is more necessary in that abstract reward may have little or no meaning and confuse rather than aid in performance.

Wolfensberger (24), after studying differential rewards as motivating factors in mental deficiency research, concluded that verbal, interpersonal reinforcement should be investigated as perhaps being more efficacious than material, concrete rewards.

This conclusion resulted from a study having three basic hypotheses (24, p. 902):

> . . . (a) giving concrete prizes during an experiment is more motivating to unselected mental defectives than giving chips which can later be redeemed for concrete prizes; (b) taking prizes away from S is more punishing and discouraging than taking away chips; (c) reward of either type is more motivating than punishment of either type.

Subjects were sixty mental defectives ranging in I. Q. from 50 to 74 with a mean of 59, age range eleven to fifty with a mean of twenty-four. Etiology was not considered important and presumably included brain-injured and non-brain-injured subjects of various types. The criterion measure was reaction time to a telegraph key-buzzer apparatus. Subjects were divided into five treatment groups:

concrete reward, symbolic (chip) reward, concrete punishment, symbolic punishment, and control with no reinforcement.

Rejection of the three experimental hypotheses was necessary with the finding that neither reward nor punishment made any observable difference in subject performance. Decline in reaction time was seen in all groups, even the control group. The explanation was that boredom or loss of interest was a factor commonly affecting all subjects, regardless of treatment condition.

Greenspoon (6) sought to determine the effect of two operations on two different verbal responses. His subjects were seventy-five undergraduate university students. The method was to present one of two stimuli, "mmm-hmm" or "huh-uh" after plural nouns or any word not a plural noun. This was done during a fifty-minute session during which the subject was to say all the single words that he could.

Greenspoon's results (6) indicated that "mmm-hmm" increased the frequency of plural responses, that "huh-uh" decreased the frequency of plural responses, but that both these stimuli increased the frequency of non-plural responses. He concluded that the character of the stimulus determines the nature of the response.

Buss, Gerjuoy, and Zusman (2) examined verbal conditioning and extinction with verbal and non-verbal reinforcers with 156 male and female psychiatric patients and

college students. The primary hypothesis was that, with humans, verbal reinforcement during acquisition leads to an extremely slow response decrement during extinction. Testing this hypothesis, the authors compared extinction curves after "Good" as a reinforcer with the extinction curves for cigarettes-candy and poker chips as rewards. The findings showed poker chips ineffective as a reward but that "Good" and cigarettes-candy were effective. There was no significant difference in the extinction curves of the verbally reinforced and non-verbally reinforced subjects. This suggests that while material or non-verbal reinforcers are effective in conditioning, verbal reinforcement alone may be just as effective.

In summary, Ellis and Distefano (5) found that verbal urging and praise significantly increased the performance level of institutionalized retardates. The suggestion was made that mental retardates require more prompting for optimal performance than normal intelligence subjects. This is similar to findings of a study by Hunt and Patterson (8) who also concluded that verbal urging of retardates significantly increased their performance level.

An additional finding from the Hunt and Patterson study (8) was that familially retarded children respond readily to verbal reinforcement, while this same reinforcement may tend to be meaningless or confusing to brain-injured retardates.

Wolfensberger (24) concluded that verbal, interpersonal reinforcement should be investigated as being perhaps more effective than material rewards with mental defectives.

Studies by Greenspoon (6), as well as Buss, Gerjuoy, and Zusman (2), further indicate the efficacy of verbal rewards in increasing responsiveness of yet another class of subjects, psychiatric patients and college students.

Synthesis of Reviewed Literature

Psychoanalytically (21) frustration is the blocking or interference of an aroused need. Characteristics of frustration are postural tension, unpleasantness or irritation, and its equation with punishment.

Symonds (21, p. 60) points out that, in psychoanalytic theory, frustration increases in proportion to the strength of the blocked drive. Too, frustration increases as the barrier strength increases. Also, the effects of minor frustrations may accumulate, resulting in over-reaction to what appeared to be minor frustrations.

Psychoanalytic theory affords several dynamisms characteristic of frustration responses. These are: projection, introjection, conversion, displacement, isolation, repression, reaction-formation, identification, sublimation, and rationalization.

The behavioristic-psychoanalytic interpretation of frustration hypothesizes frustration and aggression in

combination. The occurrence of aggression presupposes the presence of frustration.

Fundamental concepts underlying the frustration-aggression hypothesis of Dollard et al. (4) include instigation to respond, a goal-response, substitute responses, frustration, and the occurrence of aggression. Dollard et al. (4) defined frustration as the condition existing when a goal response suffers interference and defined aggression as an act the goal-response of which is injury to some organism or organism substitute.

Psychoanalytic and behavioristic concepts of frustration considered together include and explain many of the maladaptive behavioral responses of the human organism. Using this theoretical background, is it possible to construct methods of improving one's reactions to failure or frustration? Studies by Keister and Updegraff (9) and Davitz (3) suggest this possibility. Keister and Updegraff (9) worked with children who demonstrated immature behavior when faced with a failure situation. What might be called "frustration tolerance" was raised by gradually increasing the difficulty level of a series of tasks. Davitz (3) used more normal subjects, some trained to be aggressive and others trained to behave constructively. These subjects, when confronted with a frustration situation, behaved more aggressively or more constructively according to their previous training.

Though not mentioned specifically in either the Keister and Updegraff (9) or Davitz (3) studies, reinforcement of goal-directed responses was fundamental to the repetition of desired responses. Studies by Ellis and Distefano (5), Rowley and Keller (16), Hunt and Patterson (8), and others (6, 22, 24) indicate the appropriateness and adequacy of verbal urging and praise in conditioning of human behavior.

The foundation for construction of a training program to modify behavior problems in young institutionalized retarded children is thus laid.

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CHAPTER II

METHOD

Subjects

The subjects for this experiment were eighteen male and eighteen female mental retardates living in a Texas state school for the mentally retarded. All subjects were between the chronological ages of six and twelve years. Only educable students (Stanford-Binet or Wechsler I. Q. fifty to seventy) were used. Etiology of one-half the male subjects was "familial," the remaining one-half having a medical diagnosis of brain-injury. Etiology of one-half the female subjects was "familial," the remaining one-half having a medical diagnosis of brain-injury. All prospective subjects with gross sensory or motor impairment were excluded from the study as were those with gross impairment due to medication.

A list of appropriate age educable males within the state school was divided according to their diagnosis of familial retardation or retardation with brain-injury. Subjects within each of these two groups were randomly assigned to one of three treatment groups--Tolerance Training Group, Control Group I, or Control Group II--until six subjects were in each group. In the same fashion, a list of appropriate

age educable females within the state school was divided according to their diagnosis of familial retardation or retardation with brain-injury. Subjects within each of these two groups were randomly assigned to one of the three treatment groups, until six subjects were in each group. Random selection involved drawing names of subjects from a hopper and assigning the first to the Tolerance Training Group, the next to Control Group I, the next to Control Group II, and repetition of this process with each of the four groups of subjects (male familial and brain-injured and female familial and brain-injured).

Experimental Design

The basic experimental design was a 2 x 3 factorial analysis of variance in which the two main treatments and their respective conditions were Treatment Condition (Tolerance Training Group, Control Group I, and Control Group II) and Neurological Condition (Brain-Injured and Non-Brain-Injured). Data analyzed were pre- to post-test difference scores on five behavior factors of the Devereux Child Behavior Rating Scale (3, 4, 5). The random assignment of the subjects to three treatment conditions within each of two neurological conditions was the method used to equate initial individual differences on the pre-test data. Inspection of the pre-test means obtained by the various experimental sub-groups on all five criteria separately revealed the means to be approximately equal.

A brief description of the five principal treatments follows.

Tolerance Training Group

This group participated in a controlled experimental training program specifically designed to increase frustration tolerance. The program included working as a group with picture stories and individually with puzzles, block designs, and nut and bolt boards. Verbal encouragement and reward were administered by training personnel for success on these tasks.

Control Group I.--This group received the same amount of exposure to trainers as the Tolerance Training Group. However, the subjects did not receive the experimental training program. Instead, they engaged only in self-initiated activities with the trainer present.

Control Group II.--This group was not included in the experimental training program, nor did they have the one-to-one child-trainer exposure experience by the other two groups. These subjects continued the day-to-day routine of institutionalized life.

Brain-Injured Subjects.--These subjects had injury to brain cells which destroys or permanently disorganizes functioning cell systems in the brain or neurologic symtoms.

Non-Brain-Injured Subjects.--These subjects lacked symptoms, history, or documentation of central nervous system damage.

Tolerance Training Program

In general, the plan of the program was to expose subjects to a series of tasks which gradually increased in difficulty as the program progressed.

Task Selection Criteria

The criteria used to select tasks, as partially adapted from Keister and Updegraff (1) were

1. The tasks were graded in difficulty so that the child experienced success in the earlier ones and gradually worked up to problems which were difficult for him.

2. The later tasks were of such difficulty that the child did not succeed immediately but had to persevere, continue to try, if he was to attain success.

3. They were problems which interested retarded children age six through twelve.

4. The tasks avoided irrelevant frustrations which might make the subjects hesitant to enter the training situation.

On an a priori basis, a sample of tasks which would probably appeal to retardates was selected. Although no formal scaling attempt was made to order the various tasks with reference to complexity, they did range from simple

manipulation (nuts and bolts) to a task of a cognitive nature (picture stories). Each task was composed of a series of sub-tasks which gradually increased in difficulty.

Training Personnel

Six trainers were selected from volunteer psychology students at North Texas State University. These trainers received special instruction in use of the tasks as well as in the use of reinforcement and encouragement. Each task was presented to the trainers exactly as the tasks were to be presented to the Tolerance Training Group. The trainers were than divided into pairs; each member of each pair presented the tasks to his partner according to instructions and under supervision of the experimenter. Each trainer then administered selected tasks to a retarded child and was observed for proficiency through a "one-way" glass by the experimenter and the other trainers. Simultaneously, the experimenter commented on the observed task administration and offered suggestions for standardization of the procedure. Periodic checks were made during the experiment to maintain consistency of task administration. Each trainer was randomly assigned four subjects--two Tolerance Training Group subjects and two Control Group I subjects.

General Description of Tasks

A general description of the training program tasks and materials is presented below. A detailed description of

specific activities and administrative procedures is included in the Appendix.

Picture stories.--This part of the training program consisted of six stories with pictures illustrating the story's theme. An experienced special education teacher administered this part of the training program in a classroom setting. These stories were assembled as part of the Preventive Psychiatry Research Program at the State University of Iowa (2). Teaching a "causal" orientation toward human behavior and the social environment was the purpose of the series. A set of discussion questions following each story was used to facilitate the subject's comprehension of ideas and events within the story. These stories were used in sixteen group sessions totaling approximately sixteen hours.

Nut and bolt boards.--Introduced to each child as a toy, the boards had numerous exposed bolts protruding through one side fitted with appropriately sized nuts. The first board had all bolts and nuts of the same diameter. The second board had two sizes of nuts and bolts of such a diameter that easy discrimination was made by the child. Succeeding boards had increasing sizes of bolt-nut combinations comprising a six-board series. Encouragement and verbal reward were used as specified in the detailed Appendix. Each Tolerance Training Group child had twelve sessions with

this task over a six-week period, totaling approximately six hours.

Puzzle Verses.--This part of the training program consisted of six short verses or rhymes with puzzles which illustrated the verses' theme. The puzzles gradually increased in difficulty as defined by the number of pieces. Encouragement and verbal reward were used as specified in the detailed Appendix. Each Tolerance Training Group child had twelve sessions with this task over a six-week period, totaling approximately six hours.

Block designs.--Eighteen two-inch wooden cubes were the materials for this activity. Each cube had two white sides, two black sides, and two sides painted one-half black and one-half white. Eighteen designs gradually increasing in difficulty were built by each child in imitation of the trainers model. Three new designs progressing from the easiest to the most difficult were given each child each week of the program. Encouragement and verbal reward were used as specified in the Appendix. Each Tolerance Training Group child had twelve sessions with this task over a six-week period, totaling approximately six hours.

Each subject in the Tolerance Training Group received one group and two individual training sessions each week for six weeks. The group session was a picture story in a

classroom setting. Each individual training session consisted of the three remaining activities: Nut and Bolt Boards, Puzzle Verses, and Block Designs. Each Control Group I subject received the same amount of one-to-one trainer contact but without use of training program materials.

Training session length varied between children according to differing working speeds. This time factor is controlled by the experimental design.

Description of Criterion Scores

Five behavior factors were evaluated on each subject before and after the experiment using the Devereux Child Behavior Rating Scale (3, 4, 5). The first three of these factors have been labeled "behavior competence" factors. They are distractibility, social isolation, and need for independence. The remaining two factors were termed "behavior control" factors. These were proneness to emotional upset and social aggression. These five factors received close attention for change after the training program. These factors were selected because of their relevance to prominent frustration theories and the types of behavior resulting from frustration.

The Devereux Scale (3, 4, 5) was chosen to provide criterion measures for several reasons. First, it was a scale which an individual having close daily contact with a

child could use to describe reliably and communicate to others much overt behavior. Next, this scale provided a profile of behavior problems which may be used to assess behavioral changes resulting from experimental treatments or environmental changes. Also, unambiguous phrasing of scale items lended itself easily to use by laymen. Finally, recent research with the Scale on samples similar to the one used in the present study provided a frame of reference against which to evaluate obtained scores.

Inter-rater reliability coefficients reported by the Manual (5) ranged from .77 to .93 with a median coefficient of .83. A median item test-retest correlation was .83. Factor score reliability coefficients were also determined and the median was .91, with a range from .80 to .99. Validity seemed to be no great problem because of the self-evident nature of the categories and activities.

Each child was rated on the Devereux Scale (3, 4, 5) by two houseparents. This provided an observation of the child's behavior from the time he arose in the morning until his bedtime at night. The average of these two ratings was used as the criterion scores. Each child was taken to the training or control situation during or immediately following his academic school classes. This guarded against the possibility of raters' knowing which children were involved in the various aspects of the experiment.

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CHAPTER III

RESULTS

Presented in this chapter are the results obtained and the statistical analyses of those results. The data were analyzed in terms of the two hypotheses presented in Chapter I. This necessitated a separate analysis of pre- to post-test changes on each of the five behavior factors represented by the Devereux Child Behavior Rating Scale (1, 2, 3). These five factors were ease of distractability, social isolation, inadequate need for independence, proneness to emotional upset, and harmful social aggression. The five sets of scores were analyzed in a two-way analysis of variance schema: Neurological Condition X Treatment Condition.

Presented in each of the following sections are the mean decreases or increases for a selected behavior factor and the analysis of variance summary table pertaining to those data. The increases or decreases in a given behavior measure were computed in the following manner. If on the pre-test a subject scored 18.5 and on post-test scored 16.0, his change would be 2.5 (pre-test minus post-test) showing an improvement of 2.5 in the particular behavior during the course of the experiment. If, however, his pre-test score

was 16.0 and post-test scores 18.5, this would be a change of -2.5 (pre-test minus post-test) or poorer adjustment in a particular behavior over the course of the experiment. Similarly, for group means, a positive mean indicates behavior improvement and a negative mean indicates behavior deterioration.

Ease of Distractability

Presented in Table I are the mean changes in Ease of Distractability scores for each of six groups and for the Neurological and Treatment Condition main effects. The

TABLE I

MEANS AND STANDARD DEVIATIONS OF CHANGES IN EASE OF DISTRACTABILITY SCORES

Neurological Condition	Statistic	Treatment Condition			Main Neurological Effect
		Tolerance Training	Control I	Control II	
Brain-Injured	N	6	6	6	18
	M	1.67	1.58	- .33	.97
	S.D.	3.46	3.58	7.51	5.28
Non-Brain-Injured	N	6	6	6	18
	M	2.08	- .50	1.50	1.03
	S.D.	2.88	2.87	6.48	4.55
Main Treatment Effect	N	12	12	12	36
	M	1.88	.54	.59	1.00
	S.D.	3.19	3.41	7.07	

relatively large standard deviations for Control Group II in Table I does not reflect a systematic difference between groups. This large variation was caused by unusually high scores on this factor by only two of the twelve subjects.

The results of the analysis of variance of the changes in Ease of Distractability scores are shown in Table II.

TABLE II

ANALYSIS OF VARIANCE OF PRE- TO POST-TEST EASE OF DISTRACTABILITY DIFFERENCE SCORES

Source of Variation	Sum of Squares	df	Variance Estimate	F
Neurological Condition	.03	1	.03	<1.00
Treatment Condition	13.79	2	6.90	<1.00
Interaction	23.60	2	11.80	<1.00
Within	837.58	30	27.92	
Total	875.00	35		

Comparison of the F values in Table II with tabled values for significance at the five per cent point revealed no significant variations in the mean difference scores according to neurological condition, treatment condition, or interaction effect. This failure to reject the statistical null hypotheses necessitated partial rejection of the working hypotheses that frustration tolerance training would significantly reduce the level of behavior problems in mental retardates and that non-brain-injured retardates would benefit more from such training than would brain-injured retardates.

Social Isolation

Table III presents the mean changes in Social Isolation scores for each of six groups and for the Neurological and Treatment Condition main effects.

TABLE III

MEANS AND STANDARD DEVIATIONS OF CHANGES IN SOCIAL ISOLATION SCORES

Neurological Condition	Statistic	Treatment Condition			Main Neurological Effect
		Tolerance Training	Control I	Control II	
Brain-Injured	N	6	6	6	18
	M	- .42	- 1.17	1.50	- .03
	S.D.	2.49	3.45	2.52	3.06
Non-Brain-Injured	N	6	6	6	18
	M	2.33	2.67	1.50	2.17
	S.D.	2.82	1.79	5.50	3.68
Main Treatment Effect	N	12	12	12	36
	M	.95	.75	1.50	1.07
	S.D.	2.50	3.24	4.26	

The results of the analysis of variance of the changes in Social Isolation scores are shown in Table IV.

None of the obtained values in Table IV approached significance at the five per cent point, showing no significant difference in the social isolation difference scores of the experimental and control groups according to neurological condition, treatment condition, or interaction effect.

TABLE IV

ANALYSIS OF VARIANCE OF PRE- TO POST-TEST SOCIAL ISOLATION DIFFERENCE SCORES

Source of Variation	Sum of Squares	df	Variance Estimate	F
Neurological Condition	12.25	1	12.25	1.11
Treatment Condition	6.35	2	3.17	<1.00
Interaction	77.37	2	38.69	3.52
Within	329.58	30	10.99	
Total	425.56	35		

These results necessitated partial rejection of the working hypotheses that frustration tolerance training would significantly reduce the level of behavior problems in mental retardates and that non-brain-injured retardates would benefit more from such training than would brain-injured retardates.

Independence

The mean changes in Independence scores for each of six groups and for the Neurological and Treatment Condition main effects are presented in Table V. It was noted that brain-injured subjects in Control Group II showed an increase in inadequate need for independence while both the Experimental Group and Control Group I showed a decrease in this behavior. When the relative sizes of these variances were considered through the analysis of variance technique, no statistically significant variation of means was found as is shown in Table VI.

TABLE V

MEANS AND STANDARD DEVIATIONS OF CHANGES IN INDEPENDENCE SCORES

Neurological Condition	Statistic	Treatment Condition			Main Neurological Effect
		Tolerance Training	Control I	Control II	
Brain-Injured	N	6	6	6	18
	M	.50	3.41	- .42	1.16
	S.D.	1.82	2.68	1.48	2.62
Non-Brain-Injured	N	6	6	6	18
	M	.00	.33	2.75	1.03
	S.D.	1.89	3.29	4.70	3.71
Main Treatment Effect	N	12	12	12	36
	M	.25	1.87	1.17	1.10
	S.D.	1.87	3.37	3.85	

In Table VI are shown the results of the analysis of Independence difference scores.

None of the obtained values in Table VI approached significance at the five per cent point, revealing no significant difference in the inadequate need for independence difference scores of the experimental and control groups according to neurological condition, treatment condition, or interaction effect. This lack of ability to reject the null hypotheses necessitated partial rejection of the working hypotheses that frustration tolerance training would significantly reduce the level of behavior problems in mental

TABLE VI

ANALYSIS OF VARIANCE OF PRE- TO POST-TEST INDEPENDENCE DIFFERENCE SCORES

Source of Variation	Sum of Squares	df	Variance Estimate	F
Neurological Condition	.34	1	.34	<1.00
Treatment Condition	15.85	2	7.92	<1.00
Interaction	55.93	2	27.97	2.80
Within	299.96	30	10.00	
Total	372.08	35		

retardates and that non-brain-injured retardates would benefit more from such training than would brain-injured retardates.

Emotional Upset

Emotional Upset mean changes are presented in Table VII for six groups and Neurological and Treatment Condition main effects. Superficial analysis of the means for brain-injured subjects in Table VII suggested behavior change in the expected direction, that is, Tolerance Training subjects showed a greater decrease in upset scores than either control group while Control Group I mean change was greater than that shown by Control Group II. This change also seemed apparent in the scores of non-brain-injured subjects. Comparison of the relative sizes of these variances by the analysis of variance technique, however, failed to produce a statistically significant ratio.

TABLE VII

MEANS AND STANDARD DEVIATIONS OF CHANGES IN EMOTIONAL UPSET SCORES

Neurological Condition	Statistic	Treatment Condition			Main Neurological Effect
		Tolerance Training	Control I	Control II	
Brain-Injured	N	6	6	6	18
	M	2.33	1.25	.67	1.42
	S.D.	2.30	2.87	6.73	4.59
Non-Brain-Injured	N	6	6	6	18
	M	1.41	.92	- 1.92	.14
	S.D.	1.82	2.19	7.25	4.73
Main Treatment Effect	N	12	12	12	36
	M	1.87	1.09	- .63	.78
	S.D.	2.10	2.56	7.03	

The F values in Table VIII did not reach significance at the five per cent point, indicating no significant

TABLE VIII

ANALYSIS OF VARIANCE OF PRE- TO POST-TEST EMOTIONAL UPSET DIFFERENCE SCORES

Source of Variation	Sum of Squares	df	Variance Estimate	F
Neurological Condition	6.25	1	6.25	<1.00
Treatment Condition	65.18	2	32.59	1.32
Interaction	1.29	2	.65	<1.00
Within	716.17	30	23.87	
Total	789.89	35		

differences in the emotional upset difference scores of the experimental and control groups according to neurological condition, treatment condition, or interaction effect. This failure to reject the null hypotheses necessitated partial rejection of the working hypotheses that frustration tolerance training would significantly reduce the level of behavior problems in institutionalized mental retardates and that non-brain-injured retardates would benefit more from such training than would brain-injured retardates.

Social Aggression

In Table IX are presented Social Aggression mean changes for six groups and Neurological and Treatment Condition main effects.

TABLE IX

MEANS AND STANDARD DEVIATIONS OF CHANGES IN SOCIAL AGGRESSION SCORES

Neurological Condition	Statistic	Treatment Condition			Main Neurological Effect
		Tolerance Training	Control I	Control II	
Brain-Injured	N	6	6	6	18
	M	.50	2.08	2.08	1.55
	S.D.	1.40	1.21	1.14	1.43
Non-Brain-Injured	N	6	6	6	18
	M	.25	- .17	- 1.42	- .45
	S.D.	1.32	1.24	3.77	2.71
Main Treatment Effect	N	12	12	12	36
	M	.38	.95	.33	.55
	S.D.				

Table X depicts the effect of treatment condition upon the behavior factor social aggression for brain-injured and non-brain-injured subjects. For interaction is shown an F of 1.52 which falls short of the F of 3.32 required for

TABLE X

ANALYSIS OF VARIANCE OF PRE- TO POST-TEST SOCIAL AGGRESSION DIFFERENCE SCORES

Source of Variation	Sum of Squares	df	Variance Estimate	F
Neurological Condition	37.01	1	37.01	7.37*
Treatment Condition	2.76	2	1.38	<1.00
Interaction	15.26	2	7.63	1.52
Within	150.54	30	5.02	
Total	205.58	35		

* Statistically significant at $P<.05$

significance at the .05 level. This indicated that the apparent failure of the cell means to be consistent in either direction was due to chance fluctuations.

Next consider the effect of treatment condition upon social aggression. Since the F of 1.00 which was not large enough to reject the null hypothesis did not substantiate the working hypothesis, we must conclude that if the effect existed it was not large enough to be significant as measured by the present methods. The between-rows or neurological condition effect was significant as judged by the F of 7.37. The insignificant interaction permitted the conclusion that

neurological condition effect was similar disregarding treatment condition. This finding is contrary to the second working hypothesis that non-brain-injured retardates would benefit more from training than would brain-injured retardates and thus made necessary its rejection.

Summarizing these results, the hypotheses that frustration tolerance training would significantly decrease the level of selected behavior problems in young institutionalized mental retardates and that non-brain-injured retardates would benefit more from such training than would brain-injured retardates were rejected. The lone statistically significant finding was that brain-injured subjects decreased significantly in social aggression when compared with non-brain-injured subjects.

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CHAPTER IV

DISCUSSION

The present study suggests that a training program designed to increase frustration tolerance will not significantly decrease the level of fairly gross behavioral problems in young institutionalized mentally retarded children. An assumption basic to this finding is that frustration has resulted in increased behavioral problems in these subjects. More specifically, this study indicates that the training program herein implemented had no measured effect upon the level of distractability, social isolation, inadequate need for independence, emotional upset, or social aggression (except for reduced social aggression in brain-injured subjects) as evaluated by unbiased observers.

Psychological theory (9) on the multiple effects of frustration suggests that distractability, social isolation, inadequate need for independence, emotional upset, and social aggression may be observed in the overt behavior of frustrated organisms. Further theory (11, 15) on the building of frustration tolerance suggests starting the child with mild frustrations and gradually moving him toward more severe ones, or by the overcoming of a series of minor frustrations to which he can satisfactorily adjust. Experimental

procedures (3, 7) show that children's responses to failure and frustration can be improved when observed under controlled conditions. The designers (3, 7) of these experimental procedures have suggested further study to determine whether the improved behavior occurs in situations other than those of the test and under more social circumstances. The finding of this study is that if such experimentally induced behavioral changes do permiate overall behavior, the present experimental technique has not succeeded in recording such change. In this connection there are several explanatory possibilities worthy of discussion. Briefly, these are:

1. It is possible that the length of the present training program was insufficient to produce the desired change. Though possible, this seems unlikely when considering precedents to this study. Davitz (3) used seven thirty minute group training sessions over an unspecified number of days in successfully increasing destructive behavior and constructive behavior. Keister and Updegraff (7) conducted their study over a twelve week period using only one trainer in training and evaluating one child at a time. Conditioning studies using social and material reinforcers such as those by Ellis and Distefano (4), Hunt and Patterson (6), and others (2, 5, 10, 14, 16) reported significant findings from training ranging from a few minutes to several days.

2. The number of trainers may be a variable contributing to lack of positive results in the present study. Some related studies reviewed (3, 7) used only a single trainer, others (2, 6, 14, 16) only suggest the use of only a single trainer, while two trainers were used in still another research effort (10). The use of more than one trainer is not, however, felt to be a pertinent factor in this study. The rationale is that the procedures and instructions were explicitly laid out and the importance of a standardized procedure impressed upon the trainers. Weekly discussions re-emphasized the importance of this upon the trainers. The use of multiple trainers is further supported by the realization that for a training program of almost any type to be widely applicable, it must be capable of implementation by more than one individual.

3. A further factor possibly lending itself to rejection of the working hypotheses of this study is the choice of behavior evaluative instruments. The Devereux Scale (11, 12, 13), however, seems well suited to the purposes of this study. It was developed, standardized, evaluated, and used on exceptional children much like those used as subjects in the current study. The authors state (13, p. 3) that "Among other uses, the Scale may be employed (a) to assess behavioral change as a function of any treatment process or environmental change . . . and (e) as a research tool when a reliable behavior criterion is required."

4. Yet another factor confounding results of the present study may be the subtlety of any behavior changes taking place in the experimental subjects. A distinct possibility is that behavioral change of the type expected from this study may occur so infrequently and so subtlely as to be not objectively measurable in the day-to-day routine of institutional life. Though each child was evaluated by raters who considered his behavior from waking to sleeping, brief periods of unobserved behavior doubtlessly occurred. That this will occur with any type gross observational rating procedure is inescapable.

5. Closely linked to the subtlety of behavioral change and the grossness of observational techniques is the possibility that a child's changes in attitude and behavior might best be detected by his peers. If so, sociometric methods could be a valuable evaluative procedure.

6. Consultation with an eminent social psychologist (1) provided yet another factor which may be pertinent. His idea was that children with certain types of problems might best be helped by thoroughly teaching them a social skill. As an example, a young boy who experiences great difficulty meeting and relating to his peers may benefit greatly if taught to be quite proficient in hitting a baseball. This is a skill admired by young boys. This is a skill that could bring recognition and friends. This is a skill that could raise a child's self-confidence and subsequent

performance level. If this is so, then perhaps the present program is too omnibus in scope to have measurable and significant effect upon child behavior. The implication is that for measurable changes in behavior control and behavior competence more specific and individualized treatment methods may be desirable.

Summarizing, the hypotheses that frustration tolerance training would significantly decrease the level of behavior problems in young institutionalized mentally retarded children and that non-brain-injured retardates would benefit more from such training than brain-injured retardates have been substantially rejected. The lone statistically significant finding was that brain-injured subjects decreased in social aggression when compared with non-brain-injured subjects. Several possibilities for the over-all rejection of the working hypotheses have been discussed. Foremost among these possibilities is that a behavior improvement training program may best be directed at specific behavior problems of individual children.

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CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The concepts of failure, frustration, and frustration tolerance have afforded a theoretical core around which the behavior problems of young institutionalized retarded children have been examined. The specific behavior problems studied were distractability, social isolation, inadequate need for independence, emotional upset, and social aggression. Two questions were asked. How could the mental retardate's ability to deal effectively with difficult situations be increased? To what extent would training programs designed to increase frustration tolerance reduce behavioral problems?

The Problem

The major problem investigated was to ascertain the extent to which a training program designed specifically to increase frustration tolerance would reduce selected behavioral problems in young institutionalized mentally retarded children. Of lesser importance was to examine the extent to which the prescribed training would have differential effects on brain-injured and non-brain-injured retarded children.

The Hypotheses

The major hypothesis tested was that frustration tolerance training would improve the mental retardate's behavior in the areas of distractability, social isolation, dependency needs, proneness to emotional upset, and harmful aggressive behavior. The second hypothesis tested was that non-brain-injured retardates would manifest greater reduction in these specific behaviors than would brain-injured mental retardates.

The Method

Subjects of the study were thirty-six educable male and female mental retardates age six through twelve enrolled in a state school for the mentally retarded. The basic experimental design was a 2 X 3 factorial analysis of variance in which the two main treatments and their respective conditions were Neurological Condition (Brain-Injured and Non-Brain-Injured) and Treatment Condition (Tolerance Training Group, Control Group I and Control Group II). The basic criterion scores were pre- and post-test difference scores on ratings of five behavioral factors. The Tolerance Training Group participated in an experimental training program specifically designed to increase frustration tolerance. The program included group work with picture stories, and individual work with puzzles, block designs, and nut and bolt boards. Verbal encouragement and reward were administered by training personnel for successes on these tasks.

Control Group I received the same amount of exposure to trainers as the Tolerance Training Group but did not receive the experimental training program. Instead, they engaged only in self-initiated activities with the trainer present. Control Group II had neither tolerance training nor trainer contact. These subjects continued the day-to-day routine of institutionalized life. Trainers were six senior psychology students from a local state university.

The Results

The hypotheses that frustration tolerance training would significantly decrease the level of behavior problems in young institutionalized mental retardates and that non-brain-injured retardates would benefit more from such training than would brain-injured retardates were rejected. The lone statistically significant finding was the brain-injured subjects decreased in social aggression.

Conclusions

1. This study suggests that frustration tolerance training as herein conceived did not produce significant behavioral change as measured by the Devereux Scale (1, 2, 3) in retarded children.

2. Re-examination of the theoretical background as a basis for this study suggests no weaknesses. It has been shown that behavioral change can be effected. Lack of significant change as a result of the present study warrants re-evaluation and perhaps modification of its procedures.

3. The need for further research in this area seems unquestionable. The vast numbers of inadequate and disturbed individuals needing professional attention makes desirable the development of methods of treatment supplementary to counseling and psycho-therapy.

Recommendations

1. Further research in this area might give consideration to a different method of problem-area selection. The behavior problems in this study were disturbing to the child, his peers, and surrounding adults. However, more effective evaluation of training procedures might be made through selection of disrupting or dehabilitating problem areas.

2. Studies in this area should give consideration to the evaluation of behavior by two methods rather than the single method used in this and similar studies. Observation of behavior in normal social situations combined with observation in controlled experimental situations may prove fruitful.

3. The sociometric evaluation of subjects in similar studies may yield valuable information. Peers may perceive behavioral change more readily than others.

4. Frustration tolerance training programs might well include some tasks which train in skills seen as desirable by the subject being trained and his peers. This conceivably would increase the subject's self-concept as well as bring desirable attention from his peers.

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APPENDICES

APPENDIX A

TABLE XI

PRE-TEST AND POST-TEST EASE OF DISTRACTABILITY SCORES FOR 36 SUBJECTS

Treatment Combination	Subject No.	Pre-Test	Post-Test	Treatment Combination	Subject No.	Pre-Test	Post-Test
Brain-Injured Tolerance Training	1	9.0	9.5	Non-Brain-Injured Tolerance Training	19	15.0	8.5
	2	18.5	16.0		20	5.5	7.5
	3	16.5	16.5		21	17.5	17.0
	4	18.5	9.5		22	18.5	18.5
	5	17.0	18.0		23	26.5	22.0
	6	8.5	8.5		24	8.0	5.0
M		14.7	13.0	M		15.2	13.1
S. D.		4.2	3.9	S. D.		6.9	6.3
Control I	7	14.5	15.0	Control I	25	13.5	8.0
	8	19.0	16.0		26	16.5	17.5
	9	21.0	19.0		27	20.0	20.5
	10	13.0	14.5		28	18.0	19.0
	11	11.5	13.5		29	14.0	16.5
	12	21.5	13.0		30	19.0	22.5
M		16.8	15.2	M		16.8	17.3
S. D.		3.9	2.0	S. D.		2.4	4.6
Control II	13	4.0	12.0	Control II	31	22.5	26.0
	14	19.0	11.0		32	17.0	8.5
	15	15.0	24.0		33	19.0	8.0
	16	13.5	15.0		34	12.0	7.0
	17	16.0	18.5		35	4.0	8.0
	18	17.0	6.0		36	17.0	16.0
M		14.1	14.4	M		15.3	12.3
S. D.		4.8	5.7	S. D.		5.9	6.8

TABLE XII

PRE-TEST AND POST-TEST INDEPENDENCE SCORES FOR 36 SUBJECTS

Treatment Combination	Subject No.	Pre-Test	Post-Test	Treatment Combination	Subject No.	Pre-Test	Post-Test
Brain-Injured Tolerance Training	1	11.5	13.5	Non-Brain-Injured Tolerance Training	19	11.5	12.5
	2	12.5	10.5		20	9.0	10.0
	3	15.0	13.5		21	15.5	13.5
	4	14.5	11.5		22	19.0	16.0
	5	19.0	19.0		23	18.0	18.5
	6	11.0	12.5		24	12.0	14.5
M		13.9	13.4	M		14.2	14.2
S. D.		2.7	2.7	S. D.		3.6	2.7
Control I	7	16.5	12.0	Control I	25	9.5	8.5
	8	19.0	16.0		26	13.0	13.5
	9	18.5	19.5		27	15.0	11.0
	10	13.0	9.5		28	16.0	16.0
	11	11.0	8.5		29	15.5	12.0
	12	18.0	10.0		30	14.5	20.5
M		16.0	12.6	M		13.9	13.6
S. D.		3.0	3.9	S. D.		2.2	3.8
Control II	13	13.0	12.0	Control II	31	20.0	20.0
	14	12.0	10.0		32	19.0	7.0
	15	19.5	14.0		33	14.5	14.0
	16	12.0	14.0		34	10.0	11.0
	17	15.5	17.5		35	12.5	11.0
	18	11.0	12.0		36	17.0	11.5
M		13.8	13.3	M		15.5	12.4
S. D.		2.9	2.3	S. D.		3.5	4.0

TABLE XIII

PRE-TEST AND POST-TEST SOCIAL ISOLATION SCORES FOR 36 SUBJECTS

Treatment Combination	Subject No.	Pre-Test	Post-Test	Treatment Combination	Subject No.	Pre-Test	Post-Test
Brain-Injured Tolerance Training	1	9.0	8.5	Non-Brain-Injured Tolerance Training	19	8.0	5.0
	2	9.0	8.0		20	6.0	4.5
	3	5.0	3.0		21	9.0	4.0
	4	3.0	5.0		22	7.5	4.0
	5	8.5	13.5		23	8.0	7.0
	6	7.5	5.5		24	5.5	5.5
M		7.0	7.3	M		7.3	5.0
S. D.		2.3	3.4	S. D.		1.2	1.0
Control I	7	6.0	7.0	Control I	25	8.5	5.5
	8	7.5	4.0		26	10.0	9.5
	9	3.5	11.5		27	7.5	3.0
	10	7.5	7.5		28	10.5	7.0
	11	9.0	9.0		29	6.0	4.5
	12	14.5	16.0		30	7.5	4.0
M		8.0	9.2	M		8.3	5.6
S. D.		3.4	3.8	S. D.		1.5	2.1
Control II	13	9.0	5.0	Control II	31	7.5	16.0
	14	9.0	9.0		32	8.5	3.5
	15	12.5	13.0		33	7.5	4.0
	16	9.5	7.0		34	9.0	9.0
	17	11.5	6.5		35	4.5	5.5
	18	9.0	11.0		36	6.0	13.5
M		10.1	8.6	M		7.2	8.6
S. D.		1.4	2.7	S. D.		1.5	4.8

TABLE XIV

PRE-TEST AND POST-TEST EMOTIONAL UPSET SCORES FOR 36 SUBJECTS

Treatment Combination	Subject No.	Pre-Test	Post-Test	Treatment Combination	Subject No.	Pre-Test	Post-Test
Brain-Injured Tolerance Training	1	25.0	23.5	Non-Brain-Injured Tolerance Training	19	27.5	27.0
	2	31.5	31.5		20	20.5	19.0
	3	35.5	28.5		21	31.5	30.0
	4	17.0	16.0		22	21.5	22.5
	5	11.0	8.0		23	36.0	31.0
	6	20.5	19.0		24	17.5	16.5
M		23.4	21.1	M		25.8	24.3
S. D.		8.3	7.9	S. D.		6.5	5.4
Control I	7	25.5	28.0	Control I	25	23.5	19.0
	8	12.0	10.0		26	26.5	28.5
	9	29.5	27.0		27	23.5	23.5
	10	29.5	23.5		28	33.0	33.5
	11	30.0	32.0		29	30.5	27.5
	12	30.5	28.0		30	30.5	30.0
M		26.2	24.3	M		27.9	27.0
S. D.		6.5	7.0	S. D.		3.7	4.7
Control II	13	16.0	30.0	Control II	31	28.5	33.5
	14	22.0	15.0		32	11.0	24.5
	15	14.5	14.0		33	30.5	20.0
	16	25.5	27.5		34	32.0	30.0
	17	17.5	18.0		35	20.5	24.0
	18	32.0	27.0		36	32.0	34.0
M		21.3	21.9	M		25.8	27.7
S. D.		6.1	6.4	S. D.		7.7	5.2

TABLE XV

PRE-TEST AND POST-TEST SOCIAL AGGRESSION SCORES FOR 36 SUBJECTS

Treatment Combination	Subject No.	Pre-Test	Post-Test	Treatment Combination	Subject No.	Pre-Test	Post-Test
Brain-Injured Tolerance Training	1	12.5	11.0	Non-Brain-Injured Tolerance Training	19	14.0	12.5
	2	14.5	15.0		20	8.0	7.5
	3	16.0	13.5		21	15.5	18.0
	4	7.5	7.5		22	10.5	10.5
	5	5.5	4.0		23	14.5	13.5
	6	8.5	10.0		24	6.0	5.0
M		10.3	10.2	M		11.4	11.2
S. D.		3.8	3.7	S. D.		3.5	4.2
Control I	7	13.0	11.5	Control I	25	9.5	7.0
	8	6.0	4.0		26	13.0	14.5
	9	15.0	13.0		27	10.5	11.0
	10	14.5	10.0		28	16.0	16.5
	11	15.0	14.5		29	13.5	14.0
	12	17.5	15.5		30	14.0	14.5
M		13.5	11.4	M		12.3	12.9
S. D.		3.6	3.3	S. D.		2.2	3.1
Control II	13	12.0	8.0	Control II	31	12.5	15.5
	14	8.0	6.0		32	5.5	13.0
	15	6.5	5.0		33	14.0	8.0
	16	15.0	14.5		34	14.0	16.0
	17	7.0	8.5		35	10.5	13.5
	18	16.0	13.0		36	13.5	12.5
M		10.8	9.2	M		11.7	13.0
S. D.		3.8	3.5	S. D.		3.0	2.6

APPENDIX B

DEVEREUX CHILD BEHAVIOR (DCB) RATING SCALE*

George Spivack, Ph.D.
and
Jules Spotts, Ph.D.

Devereux Foundation Institute for Research and Training

Child's Name_____ Rater's Name_____

Child's Sex_____ Rater's Relationship to Child_____

Child's Birthdate_____ Date of Rating_____

RATING GUIDE

1. Base rating on child's recent and current behavior.	Consider only the behavior of the child over the past two (2) weeks.
2. Compare the child with normal children his age.	In most of the items, the standard for comparison should be the normal child of the same age and sex.
3. Base rating on your own experience with the child.	Consider only your own impressions. As much as possible, ignore what others have said about the child, and their impressions.
4. Consider each question independently.	Make no effort to describe a consistent behavioral picture or personality. It is known that children may display seemingly contradictory behavior.
5. Avoid interpretations of "unconscious" motives and feelings.	As much as possible, base ratings on outward behavior you actually observe. Do not try to interpret what might be going on in the child's mind.
6. Use extreme ratings whenever warranted.	Avoid tending to rate near the middle of all scales. Make use of the full range offered by the scales.
7. Rate each item quickly.	If you are unable to reach a decision, go on to the next item and come back later to those you skipped.
8. Rate every question.	Attempt to rate each item. If you have had no opportunity to observe the child in certain situations necessary for the rating (e.g., Bathing, eating, etc.) circle the item number.

IMPORTANT: When you are to rate a child who uses few words, makes up his own words, or has no speech, turn to p. 6 and rate the last item first, (item 97). When the child receives a rating of "5" on item number 97, then immediately proceed to do the following:

a) Rate these items "1": 10, 13, 17, 21, 28, 29, 30, 41, 63

b) Circle these items (that is, give them no rating): 7, 26, 84, 85, 86, 89, 90

After you have finished with these particular items, return to item number 1, and fill out the remainder of the scale.

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YOU ARE GOING TO RATE THE OVERT BEHAVIOR OF A CHILD. FOR ITEMS 1 THROUGH 45 USE THE RATING SCALE BELOW. WRITE YOUR RATING (NUMBER) FOR EACH ITEM IN THE BOX TO THE LEFT OF THE ITEM NUMBER.

Very frequently	Often	Occasionally	Rarely	Never
5	4	3	2	1

COMPARED TO NORMAL CHILDREN, HOW OFTEN DOES THE CHILD...

Rating	Item
☐	1. Approach strangers who come to visit the unit or home? (Examples: Go up to him; touch him; speak or ask questions if the child has speech)
☐	2. Show exceptional sensitivity to noises or bright lights, or heat or cold? (He may show this by moving away, complaining, or showing discomfort)
☐	3. Resist or refuse doing what is asked of him, or display a negative attitude?
☐	4. Cover or shut his eyes or turn away in order not to see something?
☐	5. Seek out adult help in doing things?
☐	6. Express anger in a poorly controlled and tantrum-like fashion?
☐	7. Say other children or adults do not like him or are against him?
☐	8. Have a fixed facial expression that lacks feeling?
☐	9. React as though he has no sense of pain, even in relation to relatively severe burns, pricks, abrasions, or cuts?
☐	10. Express concern about his physical health? (Examples: Complain of headaches and pains; request to see the physician or nurse; request pills or medication; say he is sick)
☐	11. Seek out adults for attention?
☐	12. Appear insensitive to extreme sensory stimulation? (Examples: Does not mind extreme heat or cold; does not respond to loud noises)
☐	13. Speak rapidly?
☐	14. Hit, bite, scratch, push, or in other ways hurt or attack other children in a free play situation with peers?
☐	15. React with immediate anger or upset if some other child interferes with his play or takes something that is his?
☐	16. Appear completely inactive and lethargic?
☐	17. Express grandiose ideas about himself which are extremely strange? (Examples: That he has unusual or fantastic power over others or things; that he is an extremely important person)
☐	18. Shut out sounds by lifting his shoulders to cover his ears, or putting his fingers in his ears?
☐	19. Attempt to get in physical contact with adults? (Examples: Hug; touch; sit in lap; hold hand)
☐	20. Express anger?
☐	21. Intentionally tell lies?
☐	22. React with great pain to any minor burn, prick, abrasion, or cut, suggesting that he has less tolerance for pain than most children?
☐	23. Act bossy or domineering with other children?
☐	24. Persist when told he cannot have something? (Examples: Nag; demand; repeatedly ask for it)
☐	25. Exhibit interest in sex, through action or in what he says?
☐	26. Complain that others are picking on him?

Very frequently	Often	Occasionally	Rarely	Never
5	4	3	2	1

Rating	Item
☐	27. Tease or bully other children?
☐	28. Jump from one subject to another while talking?
☐	29. Express fears that are unreasonable?
☐	30. Tell you things from his imagination as though they were really true?
☐	31. Take things that do not belong to him? (Steals)
☐	32. Have a blank stare or far away look in his eyes?
☐	33. Get easily upset by peers? (Examples: When teased, pushed, etc.)
☐	34. Daydream?
☐	35. Look unhappy, sad, and unsmiling?
☐	36. Have nightmares or complain of bad dreams?
☐	37. Blame others for his actions?
☐	38. Annoy or provoke peers into hitting or in other ways attacking him?
☐	39. Burst into tears or rage with little provocation?
☐	40. Jump from one activity to another without finishing the task?
☐	41. Swear or curse? (Use "damn," "hell," or other four letter words)
☐	42. Act sullen or defiant?
☐	43. Act dependent upon adults?
☐	44. Get very upset or overemotional if things don't go his way?
☐	45. Disobey the rules in games or in the house? (Cheat)

ON THE NEXT THREE ITEMS, SELECT THE STATEMENT THAT BEST DESCRIBES THE CHILD AND WRITE THE NUMBER OF THAT STATEMENT IN THE BOX NEXT TO THE ITEM NUMBER.

Rating Item

☐ 46. How often does the child soil himself?

1	2	3	4	5
Never	Less than once a month	About once a month	About once a week	Almost daily

☐ 47. How often does the child urinate in his pants during the day?

1	2	3	4	5
Never	Less than once a month	About once a month	About once a week	Almost daily

☐ 48. How often does the child wet the bed at night?

1	2	3	4	5
Never	Less than once a month	About once a month	About once a week	Almost daily

ON THE NEXT THREE ITEMS, SELECT THE STATEMENT THAT BEST DESCRIBES THE CHILD AND WRITE IN THE NUMBER OF THAT STATEMENT IN THE BOX NEXT TO THE ITEM NUMBER. IF THE CHILD'S BEHAVIOR FALLS IN BETWEEN ANY TWO STATEMENTS WRITE THE NUMBER BETWEEN THE STATEMENTS.

☐ 49. Having selected an activity for himself, how well does he usually attend to it?

7	6	5	4	3	2	1
Only momentarily		For short periods		Long enough to almost complete task		Long enough to complete task

☐ 50. When an adult tries to show him how to do something he is capable of learning to do, how does he attend?

7	6	5	4	3	2	1
Only momentarily		For short periods		Long enough to almost complete task		Long enough to complete task

☐ 51. How imaginative is the child's play?

1	2	3	4	5	6	7	8	9
Very creative and imaginative		Tends to be creative and imaginative		Does not tend in one direction or another		Tends to be simple, repetitive, unimaginative		Completely lacking in imaginative and creative qualities

FOR THE NEXT FOUR ITEMS USE THE RATING SCALE BELOW.

Very frequently	Often	Occasionally	Rarely	Never
1	2	3	4	5

COMPARED TO NORMAL CHILDREN HIS AGE, HOW OFTEN DOES THE CHILD...

Rating	Item	Rating	Item
☐	52. Resist an adult offer of help in doing things?	☐	54. Show great pride and satisfaction when he has accomplished something?
☐	53. Look happy, smiling and cheerful?	☐	55. Want to do things for himself without help from others?

FOR ITEMS 56-77, USE THE RATING SCALE BELOW.

Extremely	Markedly	Distinctly	Quite a bit	Moderately	A little	Very slightly	Not at all
8	7	6	5	4	3	2	1

COMPARED TO NORMAL CHILDREN HIS AGE, TO WHAT DEGREE IS THE CHILD...

Rating	Item	Rating	Item
☐	56. Messy or sloppy in his eating habits?	☐	59. Easily over-excited?
☐	57. Clumsy or awkward in his gross body movements? (Examples: Walking, running, jumping)	☐	60. Changeable or variable in mood or emotional state?
☐	58. Unable to bathe himself without supervision?	☐	61. Careless about appearance and belongings?

Ex-tremely 8	Mark-edly 7	Dis-tinctly 6	Quite a bit 5	Moder-ately 4	A little 3	Very slightly 2	Not at all 1

Rating Item

☐ 62. Clumsy when doing things with his fingers? (Examples: Buttoning; lacing; picking up small objects)

☐ 63. Obsessed with persistent ideas which occupy his mind or he talks a lot about?

☐ 64. Unemotional? (Rarely shows feelings)

☐ 65. Socially isolated or withdrawn?

☐ 66. Unconcerned about what others think of him or how they react to him?

☐ 67. Unpredictable in his behavior?

☐ 68. Rejected or avoided by other children?

☐ 69. Easily distracted in what he is doing by what others are doing around him?

☐ 70. Finicky and selective in what he will eat?

☐ 71. Afraid of getting hurt in physical play? (Examples: Climbing; rough housing)

Rating Item

☐ 72. Lacking in muscle tone? (Example: When you feel his muscles they seem soft and doughy)

☐ 73. Unable to dress himself without supervision?

☐ 74. Prone to get dirty and untidy quickly?

☐ 75. Impatient and unable to wait for things?

☐ 76. Physically weak?

☐ 77. Timid or shy? (Will not "venture" out to try something new)

FOR ITEMS 78-95, USE THE RATING SCALE BELOW.

Very frequently 5	Often 4	Occasionally 3	Rarely 2	Never 1

COMPARED TO NORMAL CHILDREN, HOW OFTEN DOES THE CHILD ...

Rating Item

☐ 78. Seem unable to stand up for his rights if attacked or criticized by other children? (Cries, runs away, gives up)

☐ 79. Play or remain by himself rather than with other children?

☐ 80. Liable to overeat if you don't watch him carefully?

Rating Item

☐ 81. Act before he thinks (is impulsive)?

☐ 82. Spit at others?

☐ 83. Make homosexual advances upon others?

Very frequently	Often	Occasionally	Rarely	Never
5	4	3	2	1

Rating	Item
☐	84. Use his name rather than the word "I" when referring to himself in conversation? (Example: "Sally went upstairs to get her dolls")
☐	85. Speak in a way that is disconnected, incoherent or not sensible or meaningful? (Note: Disregard speech handicaps and focus on the quality of thought expressed)
☐	86. "Mechanically" repeat what is said to him (echolalia)?
☐	87. Demand his share even when equal shares have been distributed? (Complain of unfairness)
☐	88. Show jealousy when another child receives attention from an adult?
☐	89. Use the sound of "h" or "t" at the beginning of words when he shouldn't? (Examples: Says "tat" for sat, or "harm" for farm, or "tull" for bushel, etc.)
☐	90. Speak unclearly? (Examples: Stutter; pronounce words poorly; voice quality indistinct)
☐	91. Put inedible, unhealthy or even dangerous things in his mouth? (Examples: Paper, wood, dirt, pins, garbage)
☐	92. Avoid looking directly at you or into your face, or seem to look through you rather than take notice of you?
☐	93. Rock back and forth while sitting or standing?
☐	94. Display odd facial grimaces, strange gestures, or odd movements? (Examples: Hitting or biting himself; senseless or "magical" movements of fingers, arms, legs or head)
☐	95. Mumble, shout out, or make unusual vocal noises?

☐ 96. How socially meaningful are the child's social communications to others?

9	8	7	6	5	4	3	2	1
No meaningful communication with others		May initiate speech, or gestures, but they have little meaning to him		Communicates only when he wants the adult to do something or give him something		There is back and forth communication with others, tho centered mainly on the child's needs		There is meaningful give and take of ideas or feelings with others

☐ 97. How well developed is the child's language usage?

5	4	3	2	1
Uses few words or makes up own words or has no speech	Uses many words but no sentences	Uses two or three word phrases or combinations of words	Uses simple short sentences	Uses fairly complete or full sentences

ADDED COMMENTS

Please feel free to record below any additional descriptions of this child's behavior which you think are striking or characteristic, or may not be sufficiently covered by the scales.

DEVEREUX CHILD BEHAVIOR (DCB) RATING SCALE*

George Spivack, Ph.D. and Jules Spotts, Ph.D.

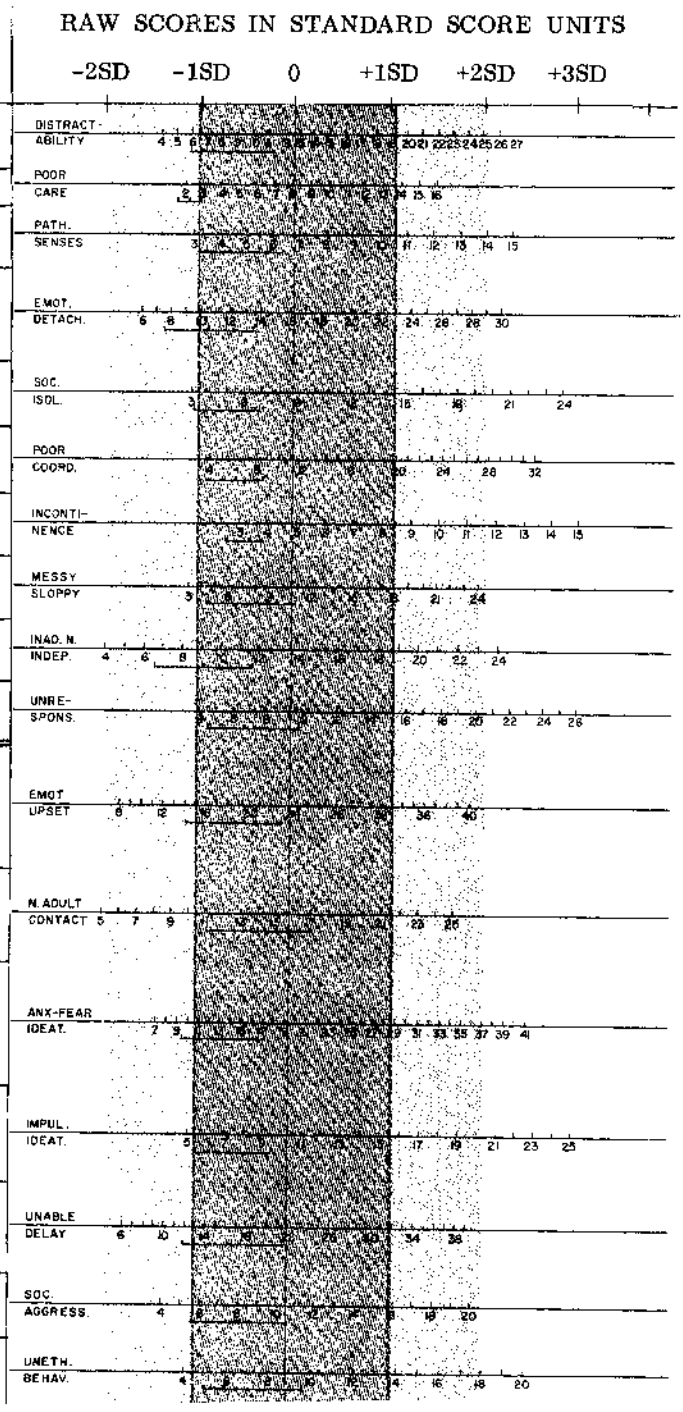
DCB PROFILE

Child's Name _____ Rater's Name _____

Age _____ Birthdate _____ Rater's Relationship to Child _____

Sex _____ I. Q. _____ Date of Rating _____

Behavior Factor	Factor Item Raw Scores	Total Raw Score
1. Distractability	jump 40 ____ 50 ____ attend attend 49 ____ 69 ____ distract.	
2. Poor self care	bathe 58 ____ 73 ____ dress	
3. Pathological use of senses	hyper. 2 ____ 18 ____ not not see 4 ____ hear	
4. Emotional detachment	face 8 ____ 34 ____ daydr. lethar. 16 ____ 35 ____ unhap. stare 32 ____ 53 ____ no smile	
5. Social isolation	isol. 65 ____ 77 ____ timid reject. 68 ____	
6. Poor coordination and body tonus	gross 57 ____ 72 ____ tone fing. 62 ____ 76 ____ weak	
7. Incontinence	soil 46 ____ 48 ____ night day 47 ____	
8. Messiness, sloppiness	eat 56 ____ 74 ____ dirty clothes 61 ____	
9. Inadequate need for independence	imag. 51 ____ 54 ____ no pride no help 52 ____ 55 ____ do self	
10. Unresponsiveness to stimulation	no pain 9 ____ 64 ____ unemot. insens. 12 ____ 66 ____ indif.	
11. Proneness to emotional upset	anger 6 ____ 26 ____ pkd on vs. him 7 ____ 33 ____ upset upset 15 ____ 39 ____ tears anger 20 ____ 44 ____ upset	
12. Need for adult contact	strgs. 1 ____ 19 ____ phys. help 5 ____ 43 ____ dep. atten. 11 ____	
13. Anxious-fearful ideation	hlth. 10 ____ 29 ____ fears rapid 13 ____ 63 ____ obsess. pain 22 ____ 67 ____ unpred. jump 28 ____	
14. "Impulse" ideation	grand. 17 ____ 36 ____ drms. sex 25 ____ 41 ____ swear imag. 30 ____	
15. Inability to delay	refuse 3 ____ 59 ____ excit. nag 24 ____ 60 ____ mood sull. 42 ____ 75 ____ impat.	
16. Social aggression	hit 14 ____ 27 ____ bully boss 23 ____ 38 ____ provoke	
17. Unethical behavior	lie 21 ____ 37 ____ blame steal 31 ____ 45 ____ cheat	



APPENDIX C

Picture Stories

The purpose of these stories is to aid in teaching a causal approach to the social environment. Much of the typical child's teaching about the social world deals with what people do rather than the motives behind their actions. Because the institutionalized mentally retarded child has less adult contact than his normal counterpart, he has even less opportunity to learn a causal orientation toward human behavior.

In designing a program to improve the retardates social competency, it seems logical to include exercises which consider the basic needs, motivations and causes underlying human behavior. The Ojemann (8) picture stories were designed with this end in mind. As part of a preventive psychiatry research program these stories have been compiled into handbooks for teachers. Book 1 (8) of this series (for kindergarten and first grade teachers) has been adopted for use in this study.

Each week for four weeks three new picture story exercises will be given to the Tolerance Training Group. Weeks Five and Six will have two picture stories each. The procedure for all stories is the same. A story is introduced and read to the group. Follow-up discussion questions will guide the children into thinking of reasons for the behavior

described in the story. The intent of these stories is to introduce a new way of thinking to the child - a way which emphasizes the meaning or causes of behavior rather than only its overt manifestations.

The following plan will be used:

Week One	Watch Out, Timothy Bruno's Treasure The New Mittens
Week Two	Boko, the Monkey Crying Again Rabbit MacGee
Week Three	Tommy McTrott Further Adventures of Tommy McTrott Jimmy's Birthday
Week Four	Midnight, A Little Black Pony Eddie Learns to Be on Time The Broken Crayon
Week Five	Time for Play Giggles
Week Six	Polly Learns Spoof Island

Nut and Bolt Boards

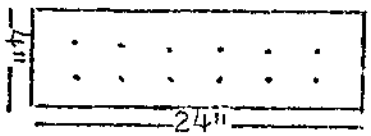
Week One	Sessions 1 & 2	Board I
Week Two	Sessions 3 & 4	Board II
Week Three	Sessions 5 & 6	Board III
Week Four	Sessions 7 & 8	Board IV
Week Five	Sessions 9 & 10	Board V
Week Six	Sessions 11 & 12	Board VI

Procedure for all boards.--Present the board to the child with the nuts on the bolts. Place the board so that the wide base is toward the child. Say, "Watch what I do." Remove all the nuts placing each on the table in random order between the subject and the board. Then say, "Now put them back onto their bolts." Allow three trials. Replace the nuts on the table for each trial and repeat the procedure.

Count it a trial when the child has placed all the nuts on the bolts. Encouragement may be used to induce the child to complete the task. Encouragement and verbal reinforcement such as "You can do it, try harder", "Try to make it this time", "You've nearly got it, keep trying", "Just a little more and you will have it", and "That's fine", "You're doing good", "Very good", "That's good", "Good", "Right", will be used during and after each trial.

Diagram and Description of Boards

Board I



Board I measures 4" x 24" x 3/4" with twelve 1/4" inch bolts protruding through one side arranged in two rows and fitted with appropriately sized nuts.

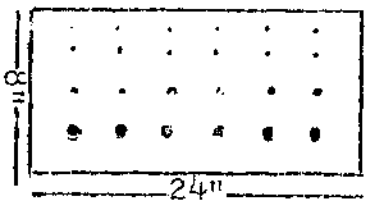
Board II

Board II measures 4" x 24" x 3/4" and has one six-bolt row of 1/4 inch bolts and one six-bolt row of 3/4 inch bolts, all fitted with appropriately sized nuts.

Board III

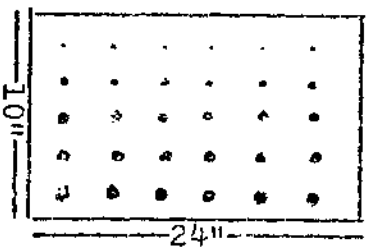
Board III measures 6" x 24" x 3/4" and has one six-bolt row of 1/4 inch bolts, one six-bolt of 1/2 inch bolts, and one six-bolt row of 3/4 inch bolts, all fitted with appropriately sized nuts.

Board IV



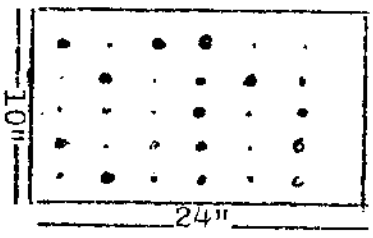
Board IV measures 8" x 24" x 3/4". It has one six-bolt row of 1/4 inch bolts, one six-bolt row of 1/2 inch bolts, one six-bolt row of 2/3 inch bolts, and one six-bolt row of 3/4 inch bolts, all fitted with appropriately sized nuts.

Board V



Board V measures 10" x 24" x 3/4". It has one six-bolt row of 1/4 inch bolts, one six-bolt row 1/3 inch bolts, one six-bolt row of 1/2 inch bolts, one six-bolt row of 2/3 inch bolts, and one six-bolt row of 3/4 inch bolts, all fitted with appropriately sized nuts.

Board VI



Board VI measures 10" x 24" x 3/". It has six five-bolt rows of random sized bolts of 1/4", 1/3", 1/2", 2/3" or 3/4" diameter, all fitted with appropriately sized nuts.

Puzzle Verses

Week One	Sessions 1 & 2	Puzzle-Verse I
Week Two	Sessions 3 & 4	Puzzle-Verse II
Week Three	Sessions 5 & 6	Puzzle-Verse III
Week Four	Sessions 7 & 8	Puzzle-Verse IV
Week Five	Sessions 9 & 10	Puzzle-Verse V
Week Six	Sessions 11 & 12	Puzzle-Verse VI

Procedure for all puzzle-verses.--Show the child the picture accompanying each verse saying "Here are _____ and _____ (the two characters of each verse). Let's read a poem about them." Read the verse with emphasis. Discuss what the child thinks, believes, or feels about the verse. Present the puzzle saying, "Look, here is a puzzle showing _____ and _____ (same two characters)." Scramble the puzzle pieces and say "Now, put the puzzle together again." Allow three trials, scrambling the pieces after each and saying, "Now, put the puzzle together again." Count it a trial when the child successfully rebuilds the puzzle. Encouragement may be used as necessary. Verbal reward, such as, "You can do it, try harder", "Try to make it this time", "You've nearly got it, keep trying", "Just a little more and you will have it", and "That's fine", "You're doing good", "Very good", "That's good", "Good", "Right", will be used during and after each trial.

Puzzle-Verse I (with accompanying puzzle and picture)

Two boys were playing in the sand.
George dropped a truck and hurt Tom's hand.
What do you think Tom could do?
How would you act if it were you?

Puzzle-Verse II (with accompanying picture and puzzle)

This morning Bill just couldn't wait
To eat his breakfast. (He was late.)
At school he had a fight with Jack
About a special building block.
Is there something different Bill today
That could cause him to act this way?

Puzzle-Verse III (with accompanying picture and puzzle)

Sarah shouted at her mother,
"I don't like my baby brother!
All he does is scream and cry.
You love him, but I can't see why."
What might make Sarah feel that way?
I wonder what her mom could say -

Puzzle-Verse IV (with accompanying picture and puzzle)

"I've got a problem," Henry said.
"At home I have a brother Ted,
And Ted sleeps in my room you see,
And never lets my playthings be.
He breaks up all my toys, but Mother
Says, 'Be kind to baby brother.'
Now what's a fellow going to do?
That room's not big enough for two--"

Puzzle-Verse V (with accompanying picture and puzzle)

A first grade boy lives down our street.
He's someone I just hate to meet
Because he's always starting fights
And lots of times he kicks and bites.
His two brothers, Mike and Tim,
Don't ever want to play with him,
And they're as tough as they can be.
Why can't he fight with them - not me?

Puzzle-Verse VI (with accompanying picture and puzzle)

In Miss Brown's room today Ann brought
A bag of jacks her mom had bought.
The other girls all jumped about.
"At recess can we take them out?"
When it was time to put coats on,
Ann gave a shout, "My jacks are gone!"
The other children stood in line.
Ann looked at Sue - "Those jacks are mine!"
"Oh, no, they're not," said Sue, "You see
They're some my sister gave to me."
Ann says they're hers and so does Sue.
I wonder what Miss Brown will do?

Block Designs

Week One	Sessions 1 & 2	Designs I, II, III
Week Two	Sessions 3 & 4	Designs IV, V, VI
Week Three	Sessions 5 & 6	Designs VII, VIII, IX
Week Four	Sessions 7 & 8	Designs X, XI, XII
Week Five	Sessions 9 & 10	Designs XIII, XIV, XV
Week Six	Sessions 11 & 12	Designs XVI, XVII, XVIII

Procedure for all designs.--Place the blocks in confusion before the child. From one-half the blocks, build design (N) according to session number beyond child's reach and say, "See what I am making." Then push the remaining blocks toward the child and say, "You make one just like this one." Allow two trials. Count it a trial when the child successfully makes the design. Repeat the procedure with the next two designs for each session. After each trial scramble the blocks for the second trial.

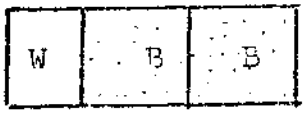
Demonstrate each new design by phrases such as "Put a white block here . . . and another white block here . . . and a black block here . . . and a black and white block here," etc.

Rotations, gaps, or incorrect designs should be corrected after saying, "No it goes this way. Now you try it."

Encouragement and verbal reinforcement, such as "You can do it, try harder", 'Try to make it this time", "you"ve nearly got it, keep trying", "Just a little more and you will have it", and "That's fine", "You're doing good", "Very good", "That's good", "Good", "Right", "That's right", will be used during and after each trial.

W - White
B - Black

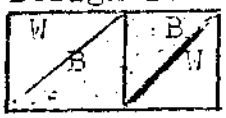
Design I



Design II

Design III

Design IV



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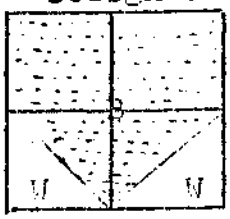
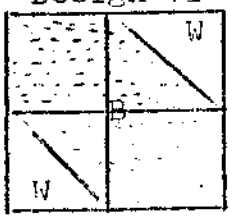
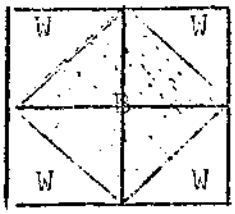


Design VI



Design VII



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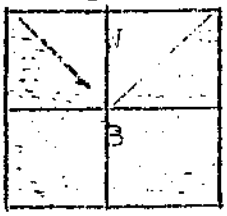

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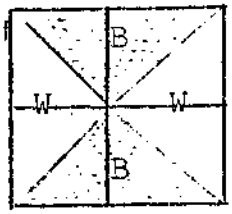
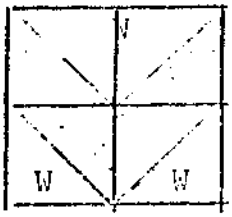
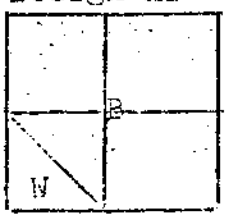


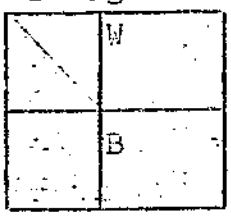
Design X



Design XI



Design XII



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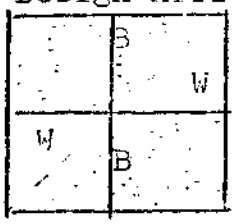
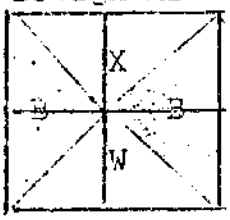
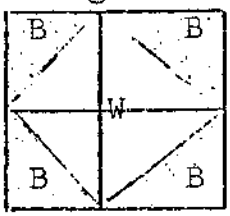


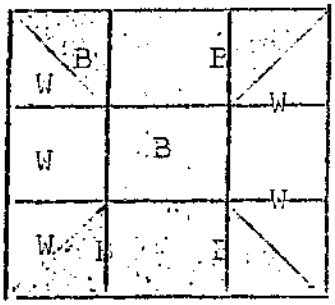
Design XIV



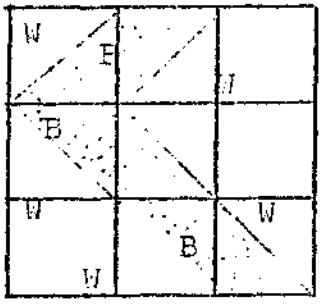
Design XV



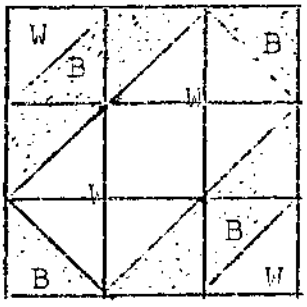
Design XVI



Design XVII



Design XVIII



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