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THE EFFICACY OF AN EDUCATIONAL PROGRAM PROVIDED FOR  
CHILDREN IN THE INPATIENT PSYCHIATRIC UNIT OF A  
METROPOLITAN HOSPITAL

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THE EFFICACY OF AN EDUCATIONAL PROGRAM PROVIDED  
FOR CHILDREN IN THE INPATIENT PSYCHIATRIC  
UNIT OF A METROPOLITAN HOSPITAL

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THE EFFICACY OF AN EDUCATIONAL PROGRAM PROVIDED  
FOR CHILDREN IN THE INPATIENT PSYCHIATRIC  
UNIT OF A METROPOLITAN HOSPITAL

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CHAPTER I

INTRODUCTION

The interdisciplinary concept of the Mental Health Services is maintained on the Inpatient Treatment Unit at Oklahoma Children's Memorial Hospital. The mental health professionals which are involved in the diagnosis and the total treatment of the patient include psychiatrists, psychologists, social workers, educational specialists, psychiatric nurses, and recreational and occupational therapists. The therapeutic community which is provided for the inpatient population integrates concomitant role modeling and positive and negative interactions which is perhaps the most strategic intervention into the lives of the emotionally disturbed. Within the framework of planned and structured activities, opportunities are provided for reality testing, mastery, sublimation, positive identification with adults and group experiences through

socialization, intensive individual psychotherapy, as well as ancillary treatments such as educational therapy, family therapy, and parental counseling (Oklahoma Children's Memorial Hospital Policy Manual, 1980). The total treatment efforts, individualized according to the needs of the child and family, are determined at the treatment staffing conference.

Since all of the children in the Inpatient Treatment Unit are of school age, it is recommended as part of the therapeutic milieu that patients shall attend special education classes. The educational program is an integral part of the therapeutic effort, and the opportunity for providing therapeutic responses to the child in the educational context is ideal. This is especially beneficial to children who have in the past had very unsuccessful educational experiences. A diagnostic evaluation of school performance by educational personnel is therefore a necessary prerequisite to a prescriptive program designed to meet the needs of each patient. This evaluation with interpretations of test results are presented at the initial conference concerning each patient and incorporated in the overall treatment plan. The child is then placed in a special class which is outside of the organizational framework of the public school setting. The background data including social histories, school reports and psychological testing, reveal that these children consistently

initiate problems with which the public school resources have been unable to deal effectively. In this program, the task of the instructors is two-fold: instruct the patient in academic endeavors and deal with the specific emotional disturbances which are impeding the educational process.

The final phase of the educational involvement is concerned with the continual liaison among the home school, the legal guardian of the patient and the hospital staff. Placement in an appropriate school setting is an integral component of the discharge procedures. If communication with the public schools has been maintained throughout the hospitalization, an assurance that the child will make the transition with ease is more likely.

According to the research which is available regarding the various psychiatric inpatient facilities for children, it is reported that educational programs are an integral component to the total treatment effort (Northcutt & Tipton, 1978; Konopasek, 1979; Wood, 1979; Motto & Lathan, 1966), but there are minimal experimental studies available which explore the relationship of the educational achievement gains and behavioral change via psychotherapy in a statistical fashion. A few studies such as the Bellevue and Kings County Psychiatric Units in New York City evaluate the educational programs through an assessment of pre- and post- achievement tests (Hicks, 1979; Griggs, 1975), but the bulk of the research concentrates on descriptive

prose involving methods, procedures and curricula of the educational classrooms (Davids & Berenson, 1977; Northcutt & Tipton, 1978; Swain, 1979; Koldor, 1979). These programs usually involve a psychoeducational model incorporating behavioral interventions, positive management techniques, prescriptive teaching and engineered classrooms.

#### Statement of the Problem

The problem is to determine whether there are statistically significant mean differences in educational achievement in reading and mathematics among psychiatric inpatient children according to diagnostic categories as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III) and therapeutic ratings given by the respective therapists.

#### Purpose of the Study

The purpose of this study is to determine if children residing in psychiatric wards are able to substantially increase scholastic achievement levels. Since it is the assumption of mental health professionals that educational programs for school aged children are essential components of the milieu treatment effort, an investigation of achievement levels upon admission and prior to discharge will determine the effectiveness of the environment to which they have been subjected.

### Hypothesis

There are no statistically significant differences in mean standard scores in reading comprehension, vocabulary and mathematics on pre and posttests for children in the Psychiatric Unit in regard to DSM-III classification and therapeutic ratings.

### Definitions of the Study

1. Emotionally disturbed: "one who because of organic and/or environmental influences, chronically displays: (a) inability to learn at a rate commensurate with his intellectual sensory-motor and physical development, (b) inability to establish and maintain adequate social relationships, (c) inability to respond appropriately in day to day life situations, and (d) a variety of excessive behavior ranging from hyperactivity, impulsive responses to depression and withdrawal" (Haring, 1963, p. 291).

2. Inpatient Treatment Unit: "a residential setting with planned and controlled living. The structure of this type of institution represents the fundamental therapeutic component of residential treatment" (Oklahoma Memorial Hospital Policy Manual, 1980).

3. Reality Testing: "a fundamental ego function which consists of the objective evaluation and judgment of the world outside the ego or self. Reality-testing depends

upon the simpler ego-functions of perception and memory and upon differentiation between ego and non-ego. External objects represent a threat to the ego and/or potential gratification and the ego can best protect itself against threats and can secure maximal gratification by using reality-testing to judge reality objectively and direct its actions accordingly" (Hinsie & Campbell, 1977, p. 649).

4. Mastery: ". . . a technique which the individual utilizes in adapting itself to its environment when seeking to control (master) it" (Hinsie & Campbell, 1977, p. 453).

5. Milieu therapy: a French term that is used to mean treatment by environment, generally used in total care programs such as institutions for emotionally disturbed children. It cannot be transplanted to public schools without modification. These modifications could include: manipulation of schedules for the benefit of a child; organization of staff to recognize or avoid reinforcement of certain behaviors; and involvement of significant persons in the child's life to support positive feelings that the child emits (Reinert, 1976).

6. Sublimation: ". . . a substitute activity which gives some measure of gratification to the infantile impulse which has been repudiated in its original form. It is a process of modifying an instinctual impulse in such a

way as to conform to the demands of society" (Hinsie & Campbell, 1977, p. 723).

7. Positive Identification: when a person incorporates within himself a mental picture of an object and then thinks, feels, and acts as he conceives the object to think, feel and act. Many of the youngsters in residential settings have not experienced wholesome relationships with adults even within their own families. If adults treat the children or adolescents with sensitivity and understanding, they may help them overcome reservations and resistances to forming significant relationships. This would, in turn, help the formation of positive identification.

8. Prescriptive Program: an individualized, educational program which concentrates on a person's strengths and weaknesses in the area of academic achievement. It is a curriculum developed to fit the needs of an individual student.

9. Diagnostic and Statistical Manual of Mental Disorders, Third Edition: a manual of psychiatric diagnoses used for diagnostic assessment of psychiatric patients. The Third Edition was published in 1980 and supersedes the previous DSM-II (1968) with inclusion of a revised terminology, making this manual more understandable and useful to physicians (non-psychiatrist) and other non-physician mental health professionals. This manual is referred to in this study as DSM-III (American Psychiatric Association, 1980).

### Procedures of the Study

From August 1, 1978, to August 1, 1980, 80 students have been enrolled in the Inpatient Psychiatric Treatment Unit School at Oklahoma Children's Memorial Hospital. From this group, 40 students for whom all test data were available were selected for this study. The 40 subjects for this investigation ranged in age from 8-16 years with educational grade levels ranging from third to tenth grades. The minimum length of stay in the Inpatient Unit for the entire population was 3 months and the maximum length of time was 12 months. The 40 subjects were classified into three diagnostic categories according to the DSM-III.

As a part of the initial diagnostic evaluation of the milieu team, an educational assessment was conducted where strengths and weaknesses of each patient were revealed. The battery of tests used for this evaluation included intelligence testing, reading achievement tests and diagnostic tests when deemed appropriate. A prescriptive curriculum was then generated according to the needs dictated by the scholastic profiles. Each child was subsequently placed in a highly structured classroom environment where a 6:1 student/teacher ratio prevailed. The classroom was divided into four learning centers concentrating on the required subject areas: language arts, mathematics, science and social studies. Students moved



from one center to another spending 40 minutes in each segment. In each subject, modifications were made which were applicable to individual needs. Progression of skills was accomplished through a mastery achievement concept; i.e., a more advanced skill was not initiated until 80% achievement had been reached on previous skills. Concomitant with the scholastic environment was an individualized behavioral treatment plan which was designed to create an atmosphere for optimum potential. The creation of each behavioral treatment plan was developed through the collective efforts of the milieu staff members and the patient in question. Ratings of progressive behavior change were evaluated and reported by the respective therapists.

The final phase of the patient's hospitalization involved discharge procedures. The educational staff was particularly concerned with levels of achievement and adequate preparation for regular school adjustment. These issues involved the administration of post achievement tests for a comparative basis and the latter involved an assessment of appropriate classroom behavior demonstrated by the implementation of the individual treatment plans and reports and observations by the various members of the interdisciplinary team involved with this unit. The data obtained from the evaluations upon admission and prior to discharge served as the basis for the statistical analysis of this study which involved analysis of variance (ANOVA)

to test for main effects and a post hoc comparison to determine which of the differences among group means were significant and a Pearson's product-moment correlation to test the relationship between behavior ratings and academic achievement.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

Emotional problems have long been linked to reading difficulties (Diehi, 1979). Blanchard's work appeared in 1928 and was the first attempt to correlate specific emotional problems with reading problems. At that time she identified specific emotional correlates which were concomitant with reading retardation. They included: day-dreaming, secluviness, laziness, inattention, absent mindedness, lack of interest and sensitiveness. Since that time an abundance of researchers from diverse theories of thought have exchanged ideas on the relationship of mental disturbances and reading (Rutter et al., 1970) but conclusions to the extent and nature of this relationship has remained unsolved. A few of the reasons for this dilemma include: "(1) researchers have encountered difficulties in defining and assessing personality variables, (2) researchers and theoreticians have often disagreed about the causes, manifestations and definitions of personality disorders and emotional problems due to basic differences among schools of educational and counseling psychology and

(3) researchers have encountered difficulty in establishing a direct relationship between reading and emotional factors without contamination by other influences" (Diehi, 1979, p 1).

Regardless of these problems in determining an existing relationship few researchers have discounted the correlation between reading and emotional problems. For the past two decades, the literature concerning this issue has been divided into three groups: (a) A concomitant relationship does exist between poor reading achievement and emotional disturbances; (b) emotional disturbances do not always accompany a reading disability; (c) a cause and effect relationship between reading achievement and emotional disturbances is a factor. The review of pertinent literature concerned with these three influences is presented herein.

#### Reading Achievement and Emotional Disturbance

Many researchers give credence to an existing relationship between emotional disturbance and reading disability without engaging in a cause/effect entanglement. Quay et al. (1966) conducted a study where 441 children in public school classes for emotionally disturbed were rated by their teachers on a checklist of problem behaviors. A factor analysis of the intercorrelations of the behaviors indicated that three factors could account for 76% of the variance. These were labeled (a) conduct problems or

unsocialized aggression, (b) inadequacy-immaturity, and (c) personality problem or neuroticism. With the major differences in personality patterning, it was concluded that there is a need for individualized study and treatment of retarded readers. Another study conducted by Spache (1957) also found no single personality pattern was descriptive of all retarded readers, but a positive relationship between reading and emotional factors existed. He investigated the identification of personality patterns and disability cases. He compared the general personality characteristics of retarded readers with the general characteristics of normal, well adjusted children. The children's form of the Rosenweig Picture Frustration Study was utilized for his measurement of adjustment. The measure deals with the strength of such personality components as aggression or hostility, feelings of martyrdom, self blame, negativism or defensiveness and self-control or tolerance. In the 125 subjects which Spache tested, the results showed that reading disability cases exhibited more hostility and overt aggressiveness toward others. They also showed less ability to accept blame. The Rosenweig Picture Frustration Study permits analyses of two types of conflict situations adult-child and child-child. Poor readers showed significantly more defensiveness, less tendency to accept blame and fewer social conformity tendencies when dealing with adults than did the normals. In child-child relationships,

poor readers showed less tolerance, greater defensiveness, and fewer efforts to find solutions to conflict.

Williamson's study (1979) which concurred with the preceding work by Spache and Quay correlated personality characteristics with reading achievements and concluded that there was a wide range of personality structures within a population of reading disabilities rather than any particular type of personality. Therefore, a single situation or personality maladjustment can not be isolated to explain the development of a reading disability. She continued to report that of all the areas of personality correlated with reading achievement, self concept seems to be most closely related.

A study by Bodwin (1959) also concurred with Williamson's conclusion regarding an immature self-concept and reading retardation. Utilizing control and experimental groups, 300 subjects from grades three through six were given the Draw a Person Test. Self-concept was defined in terms of lack of self-confidence, lack of freedom to express appropriate feelings and lack of feeling of personal appreciation by others. He concluded that a very significant relationship exists between an immature self-concept and a reading disability.

Many studies utilize teacher rating scales as a screening device to aid in this investigation. Noland and Gruber (1976) analyzed the relationship among (a) academic

achievement (b) teacher ratings of behavior and (c) pupil self-report personality scores in emotionally disturbed children. The personality variables included: extroversion, anxiety, independence, self-esteem and body cathexis. The behavior variables were: acting-out, withdrawal, distractibility, disturbed peer relations and immaturity. The instrument used to measure academic achievement was the Wide Range Achievement Test (WRAT). The only significant relationships were between academic achievement and teacher ratings of behavior using a multi-variate analysis. The acting-out, withdrawal and immaturity behaviors revealed a significant relationship to reading and spelling on the WRAT.

In another study involving teacher rating scales, Kolvin et al. (1977) screened junior high school children for high risk of emotional and educational disorders. The information was gathered from the school, using standard and objective tests. The multiple criterion screen employed (a) classroom behavior scale (Rutter B Scale) rated by teachers, (b) sociometric tests; choice of companions by classmates (c) reading quotient of 75 or below on the Young Reading Test and (d) absenteeism. The three important criteria of this study were behavior from the teacher rating scale, feelings of rejection from the companions chosen by fellow classmates and reading. The behavioral pattern which was most significant on the teacher's rating scale

was "conduct disorder." Furthermore, this research study confirms the significant relationship between reading and emotional disturbance.

In 1965, Schroeder utilized teacher rating scales to place 106 emotionally disturbed children in one of five behavioral categories. Results revealed that the children who were placed in the "school difficulties" category had the lowest achievement level. Conversely, children who were rated "neurotic-psychotic" had the highest achievement level as compared to the other five behavioral categories. In summary of this study, Schroeder lent support to the hypothesis that academic underachievement is associated with emotional disturbance.

In examining anti-social patterns more closely, many studies have attempted to isolate this behavioral pattern to school adjustment. Mullen (1950) compared two groups of adolescents. The first group consisted of students who frequently participated in classroom disorder and the second group consisted of students who were frequently truant from school. The results indicated that grade retardation and reading disabilities are more prevalent among the adolescents who have become conduct problems in the classroom than among those who have become truant.

In concurrence with this line of thought, Camp and Zimet (1975) explored the relationship between poor reading achievement and behavior problems in the classroom. Forty-



five children in two separate first grade classes were analyzed during their regular reading groups which were divided into low, median and high, based on the skill levels of the class. Reading instruction consisted of thirty minutes with the teacher in small groups. Concomitant with the reading instruction, observations of behavior, using an adaptation of Werry and Quay's (1969) method, were conducted during reading class. An observer, who was intentionally unaware of the nuances of the total study, would watch each child for 20 seconds, then record for 10 seconds. A maximum of nine one-half minute segments were obtained for each child during 12 to 15 observation periods. The observer recorded behavior in 39 categories. It was reported that as one progressed from the low to high reading groups "no deviant behavior" and "on-task" behavior increased while "total deviant behavior" and "total off-task behavior" decreased.

"A commonly accepted belief is that emotionally disturbed children as a group are deficient in school skills, particularly in reading. The evidence for the converse of this, that reading-disabled pupils show more maladjustment than pupils making normal progress, appears clear, but whether disturbed children are also disabled in school skills is moot" (Balow, 1966, p. 124). Many investigators have attempted to draw a relationship between academic achievement (acquisition of reading and arithmetic skills)

and emotional disturbances and have failed (Morse et al., 1964; Rabinovitch, 1964). Velfort (1956) investigated hostility as a specific behavior determinant of reading disability. She studied 29 retarded fifth graders of average intelligence from middle-class backgrounds. The pupils used in the study were retarded by more than 1 1/2 years in reading achievement. These 29 children were matched with 29 pupils who were not retarded. She hypothesized that there would be a greater amount of hostile fantasy in reading difficulty cases, that they would be more neurotic, that they would demonstrate less socially condoned aggressiveness, and that they would behave in an anti-social manner. Her results did not support some of the studies which correlate hostility and conduct disorders to reading. She concluded that no generalization regarding the role of aggression and hostility to reading difficulty could be made. Additionally, the behavior inventory utilized by this study indicated that poor readers did not exhibit more school behavior problems. She did find that poor readers tend to be more neurotic and less assertive.

Another study which was conducted by Lambert and Urbanski (1980) identified three behavioral typologies among elementary school pupils in order to ascertain the relative importance of these behavioral dimensions to reading and mathematics achievement. The behavioral dimensions to which the subjects were assigned included: (a)

adaptation or a learning problem dimension, (b) interpersonal or social problem dimension and (c) intrapersonal or personal adjustment dimension. They concluded that the behaviors which were associated with the adaptation dimension were the only ones significantly related to reading and mathematics achievement. These data suggest that the occurrence of problems in interpersonal and intrapersonal behavior in the absence of associated adaptational problems are not related to academic achievement among elementary school pupils. In this study, difficulties in classroom adaptation includes the ability to follow directions, the acquisition of school subjects, and the responding or maintaining in learning situations with the absence of psychopathology.

A few studies which are reported in the literature involve children who are residing in psychiatric hospitals. Farmer and Garfield (1971) investigated the relationship between the ability to read and the meaning and expression of emotion among institutionalized lower-class boys. Two carefully matched groups differing only in reading level were compared on several measures of emotional meaning and expression. No relationship was found between these measures and the ability to read. In accordance with this finding, Tamkin (1960) conducted a study utilizing 34 disturbed children requiring residential treatment. He hypothesized that "severe reading disability is likely to

be a serious catastrophe to many children who feel defeated in a very significant aspect of living" (p. 67). His study surveyed the achievement of emotionally disturbed children to ascertain frequency of educational disability. The expectation that educational disabilities would predominate in a group of emotionally disturbed children requiring residential treatment was not substantiated by the findings of this study. The Wide Range Achievement results showed that for the group as a whole, the academic achievement level was consistent with the expectation for its mean chronological age. Another study concerning psychiatric inpatients, Shinota (1964) utilized psychoanalytic analysis in regard to older delinquents at Western State Hospital in Washington and stated that emotional handicaps did not correlate with reading disabilities. She found no difference in the better and poorer readers in regard to stress on reported id-super-ego conflict.

Graubard (1968) added the psycholinguistics component to this relationship between emotional disturbance and reading and found some interesting results. He examined the extent of the homogeneity among behavior attributes which characterize subgroups of disturbed children and the influence these behaviors had on learning characteristics on such variables as intelligence, reading levels and the Illinois Test of Psycholinguistics Abilities. The emotionally disturbed children utilized in the experimental group

were divided into four psychopathological subgroups: (a) conduct disorders (b) personality disorders, (c) inadequate-immature and (d) socialized delinquency. Graubard found that the experimental group was significantly lower than controls in visual-motor sequencing (attention to task, visual memory and perception) and auditory-vocal automatic responses (grammar completion and closure) but surprisingly higher in areas of encoding. However, none of his groups in this study were retarded in reading according to their mental age. Thus, the data from this study showed that disturbed subjects were not, in fact, significantly retarded in reading when their mental age was taken into account.

Another study which found an inverse relationship found symptoms of psychopathology among superior readers. Cutt's (1956) study showed that superior readers were no better adjusted personally and socially than poorer readers. In fact, the superior readers in his study showed more tension, more nervousness and more withdrawal tendencies. Brueckner and Bond (1955) point out that often times intrinsic motivational factors occur in children who exhibit severe emotional problems. They tend to compensate for their difficulties by excessive educational striving, thus becoming extremely competent students.

In conclusion of this segment, Swift and Spivack (1969) demonstrated that educational underachievement is related

to much broader classroom functioning than just behavior, such as pupil intelligence and pupil-teacher interactions. They hypothesized that teachers' ratings on matters such as report cards are influenced by the maladaptive behavior of the individual irrespective of achievement levels. They found that children who received report card grades of A or B assigned by their teacher displayed significantly less problem behavior than youngsters who received grades of D or F. This occurred regardless of the level of group achievement tests and overall intelligence.

A cause and effect relationship is difficult to establish between reading disability and personality maladjustment (Page, 1952), but despite the problems which inevitably occur, many researchers and theoreticians are proponents of either causal factors which result in reading disabilities or claim that substandard reading skills create maladaptive behavioral manifestations. However, the bulk of related literature concerning this issue lies with the causal factor as being predominate (Blau, 1946; Harris, 1961; Pond, 1967; Sperry, 1958).

In 1932, Monroe concluded that reading deficit children were more inclined to be school problems, to have temper tantrums, to daydream and to have enuresis. She listed emotional factors as being one of the factors causing reading difficulty. Among the personality and emotional factors which may limit progress in reading include

attentional instability and resistance to reading (fear, timidity, embarrassment, withdrawal, etc.) Later in 1937, she reflected even more of an influence from psychoanalytic thought. She continued to stress the role of early experience (poor habit training) on emotional and reading problems and included the following psychoanalytic correlates to reading disability: aggressive-opposition, withdrawal (through truancy or daydreaming), compensating mechanisms, defeatism and hypertension with anxiety and nervous mannerisms. In 1936, Blanchard evaluated the relations between reading disability and difficulties of personality and emotional development in 73 consecutive cases referred to the Philadelphia Child Guidance Clinic, concluded that reading difficulties did not, in fact, cause the emotional stability, but the disability was a symptom of maladaptive emotional development. She adds that this deficit occurs much in the same manner as the accompanying personality or behavior problems or neurotic symptoms.

Abrams (1970) stated that there is a range of personality structure within a population of reading disabilities rather than any particular type of personality. In 1968, he defined reading as a "reconstruction of the facts behind the symbols. This definition points out very clearly that reading is more than word recognition but the reader is required to utilize past experiences to the printed page and interpret the symbols in the light of these

experiences" (p. 77). He goes on to explain that defense mechanisms utilized by the individual also plays a paramount role in influencing learning. The major defenses which he emphasizes as influential factors in learning include: "1) massive repression--unable to acquire facts and to accumulate knowledge in accordance with his intellectual potential. Knowledge can not be assimilated unless it is assimilated with other freely available knowledge; 2) isolation--deny feelings, stifle all fantasy and feeling; and 3) reaction formation--reverse of feelings" (p. 78). In summary, Abrams states that learning is affected by emotional factors as well as intellectual ones.

Sylvester and Kunst (1968) emphasize the unique connection between the disturbances in the evolution of the exploratory function and subsequent reading disability. They conclude that "the vicissitudes encountered by the exploratory function are similarly reflected in the later capacity for abstract learning" (p. 36). They added that anxiety as a result of this disturbance can easily be detected through oral reading procedures; i.e., (a) hesitating and pausing--the reader attaches himself to a word or phrase and is afraid to make the move for fear of the unknown. (b) Frantic rushing through a reading assignment--the reader attempts to rush through quickly for fear of failure. Sylvester and Kunst summarized that a reading disability is a result of "1) inadequate capacity



for mastery 2) fear of loss of love 3) patient's own destructive threat toward the person on whom he depends" (p. 36).

An interesting study by Singer and Pittman (1968) approached the problem of reading disability utilizing a Sullivanian theoretical framework. This study and the research to be recorded have a dual purpose: "to examine a clinically identifiable psychological malfunction from a theoretical point of view advanced by Sullivan and to investigate the adequacy of this frame of reference in relation to empirically derived data" (p. 55). They claim that children exhibiting reading difficulties manifest behavior highly reminiscent of a hysterical personality type. Sullivan refers to this as a "self-absorbed individual." The salient characteristics which are demonstrable in these particular individuals include: a high degree of insincerity, exploitativeness, dishonesty and hypocrisy in both the hysterics' personality and his background. Therefore, children of this ilk would tend to be more sensitive to dishonesty, inconsistencies and the contradictions which they encounter. They hypothesize that children with reading disabilities would fair better when asked to point out what was hypocritical, dishonest, ridiculous and insincere in given situations than those of their matched peers who did not show this particular symptom. The materials used for the study were the "Verbal

Absurdities" (connoting dishonesty and inconsistency) and the "Proverbs" (connoting honesty and sincerity) on the Binet Individual Intelligence Test. The disabled reading subjects were given these two tests in order to assess any relationship which may occur. A comparison between the Absurdity score and the Proverb score of the disabled readers was 13.50 and 4.70 respectively, which eventuated in a  $t$  value of 2.84 significant at better than the .01 level of confidence.

A number of researchers who assert that maladjustment precedes poor reading ability also advocate psychotherapy as an avenue towards remediation of this deficit. Blanchard (1935) proposed that if psychogenetic factors predominated, psychotherapy alone could bring about reading improvement. A study by Fisher (1953) investigated the effects of group psychotherapy on intermediate grade children. He used 30 boys, ages 10 to 14 with IQ's ranging from dull-normal to normal. The reading achievement of these students was at least three years below grade level. The 30 subjects who were equal in age and intelligence were divided into three remediation groups. Group one consisted of remedial reading instruction and group psychotherapy, group two had reading instruction only and group three had group psychotherapy only. His results showed the greatest positive personality changes and the greatest improvement in reading occurred in group three, which had group psychotherapy only.

In accordance with this study, Bills (1950) investigated the effect of play therapy on reading disability cases. His study incorporated three periods of 30 school days each. The first period which was the control group witnessed no play experience, a non-directive play therapy experience was provided for the second group and the third period was utilized to measure the gains following the therapeutic intervention. At the end of the 30 school days, the results showed that significant changes in reading ability occurred in the group where play therapy was provided. In conjunction with this study, Seeman and Edwards (1954) experimented with fifth and sixth graders, positive results in reading were also indicated in the play therapy group.

Since much of the literature claims that emotional disturbance precedes reading disabilities, could this component have any predictive value for educators to follow? Could a behavioral checklist predict school failure or academic success? Atwell et al. (1967) claim that kindergarten behavior ratings frequently predict later educational achievements. Feldhuzen et al. (1970) were able to relate previous behavior with subsequent educational achievement, even in those studies in which intelligence was controlled by statistical methods. Five years after these youngsters had been designated either aggressive or socially approved in their behavior. Feldhuzen

hypothesized that these two groups would be distinguishable from one another in terms of academic achievement as reflected in school grades and standardized test scores. He also wanted to ascertain whether the differences, if any, are related to sex or grade level. The mean IQ of the aggressive child group was 103.60 and the socially approved was 111.73. Since this discrepancy was statistically significant an analysis of covariance statistical design was used to eliminate the influence of the IQ score. It was found that the aggressive group performed at far lower levels on all subject areas and also on academic tests. Carrithers (1965) conducted a similar study which obtained a predictive value. She hypothesized that "children with emotional difficulties during their preschool years 1) would have more difficulty in reading than those children without such problems, 2) would follow different reading patterns, and experience different learning problems in primary reading 3) would have more negative attitudes toward reading and 4) would provide clues to later reading difficulties through an assessment of an emotional classification during the preschool years" (p. 4). There were 61 children presented in this study with three successive groups of first graders. Psychiatric evaluations were assessed by a psychiatric social worker. The following is a delineation of the findings:

- 1) Association between word knowledge and emotional problem assessments was found to be

significant at the .05 level of confidence among first grade children.

2) Associations between word discrimination and emotional problem assessments was found to be significant at the .01 level of confidence among the first grade children.

3) Association between reading ability and emotional problem assessments was found to be significant at the .01 level of confidence among first grade children. (p. 5)

In summary, the findings indicated that children who have been diagnosed as having emotional difficulties in preschool will encounter greater difficulty in learning to read than those children without such problems. Additionally, since these findings were consistent to the third grade, this suggests that these difficulties will stay with them throughout the primary grades.

A study which utilized self-concept measures as a predictive index of reading progress was Wottenberg and Clifford (1964). Measures of self-concept and mental ability were obtained for kindergarten children in two Detroit elementary schools. The measures of self-concept consisted of a sentence completion test and analyses of tape recordings of children's remarks while simultaneously drawing a family picture. Two and one-half years later, measures of the pupils' progress in reading were obtained, and the self-concept measures were repeated. The findings showed that measures of self-concept taken in kindergarten proved to be significantly predictive of reading progress. Additionally, the two highest components of self-concept

which had the greatest predictive value was " feeling of competence" and "feeling of personal worth."

To conclude the discussion on the cause-effect relationship of emotional disturbance and reading disabilities, there are a few studies which represent the inverse of this issue (Critchley, 1962). Gates and Bond (1936) observed a wide variety of symptomatic reactions attributable to reading disability. They evaluated 100 reading disability cases and found that out of this group, approximately three-fourths showed personality maladjustment, of which 25% were considered to have personality problems causing the reading disability and 75% were considered to have personality problems as a result of the disability. The emotional problems he observed in this study included defense reactions such as bragging and defiance, retreat reactions such as truancy and mind wandering, self-consciousness, submissive adjustments and nervous tension and habits. Lane and Albee's (1966) study inferentially supported this theory with her retrospective design. She found that subjects who were diagnosed as adult schizophrenics, when compared to their own siblings as controls, had begun in elementary school to manifest difficulties in intellectual functioning.

#### Arithmetic Achievement and Emotional Disturbance

As reported in the preceeding literature, emotionally disturbed children encounter unsuccessful experiences in

the academic areas of the school curricula and among the most difficult of these subject areas is arithmetic. Evidence has been cited to support the view that most children classified as emotionally disturbed or socially maladjusted had difficulty learning and applying arithmetic ideas (Jones, 1971).

Cleveland and Bosworth (1967) studied the relationship of certain psychological and sociological characteristics and arithmetic achievement. The purpose of the study was to discover whether there are statistically significant differences between the top-quarter arithmetic achievers and the bottom-quarter arithmetic achievers at sixth grade level in a specified number of psychological and sociological characteristics. These characteristics were taken from the personality dimensions found on the California Test of Personality. The characteristics were reviewed on three intelligence levels in relation to three aspects of arithmetic learning: skills, concepts and problem-solving. The results of this study revealed a positive correlation between arithmetic achievement and a psychologically healthy personality. The higher achievers of both sexes and from both socio-economic levels attained higher scores in the areas of (a) personal adjustment, (b) social adjustment and, (c) total adjustment.

Capps (1962) conducted a similar study by examining characteristics of 188 fourth and sixth grade children who

were diagnosed as being accelerated or retarded in arithmetic achievement. The average intelligence level of the accelerated group and the retarded group was 117 and 97, respectively. Four arithmetic areas which were used in the study were correlated with scores on the 15 areas in the California Test of Personality. A t-test was used to test the differences. As was reported earlier, results supported the notion that emotional adjustment contributes to achievement in arithmetic. He concluded that arithmetic achievement tended to be related to personal adjustment.

Maes (1966) performed a multiple regression analysis on significant variables which analyzed characteristics of emotionally disturbed children. The variables in decreasing order of prediction included: (a) teacher rating of behavior; (b) arithmetic achievement; (c) intelligence; (d) a class play; and (e) teacher rating (physical characteristics); and (f) reading achievement. As evidenced by this data, the predictive value of arithmetic underachievement in identifying emotionally disturbed children was second only to "teacher rating of behavior."

Swift and Spivack (1968) also wanted to ascertain clues as to the predictability of educational achievement by behavior at an early age. They correlated behavioral patterns found in emotionally disturbed classes and regular classes to achievement, intelligence, age, sex, and the clinical diagnosis of the emotionally disturbed children.



With a factor analytic technique, 11 factors (behaviors) evolved. Ten of these 11 behaviors were significantly related to achievement in both normal and special classes. The 10 behaviors were: (a) classroom disturbance; (b) impatience; (c) disrespect-defiance; (d) external blame; (e) achievement anxiety; (f) external reliance; (g) comprehension; (h) inattentive-withdrawn; (i) irrelevant-responsiveness and (j) creative initiative. The data showed high scores on factors 1, 2, 3, 4, 5, 6, 8, and 9 and low scores on factors 7 and 10 were significantly related to low academic achievement; furthermore, they found that the arithmetic grades are more highly related to the behavior factors than are reading grades. Jastak (1946) observed the same observation which was supported by Swift and Spivak regarding the occurrence of high reading scores and low mathematics scores in emotionally disturbed individuals.

Three other studies which support the conclusion that emotionally disturbed children score lower in arithmetic than reading are Tamkin (1960), Stone and Rowley (1964) and Schroeder (1965). Schroeder classified children into the following categories: (a) those exhibiting aggressive behavior; (b) those having school difficulties; (c) those experiencing school phobia and (d) those having neurotic-psychotic personalities; (e) those having withdrawal tendencies. She concluded that disturbed children were

not a homogeneous group with respect to academic performance. She found that disturbed children represented in all behavioral categories scored consistently lower in arithmetic.

In conclusion, the relationship of socially maladjusted boys to arithmetic achievement was investigated in several studies. In 1934, Lane and Witty found delinquent boys to perform poorly in arithmetic tasks which require repetition and drill. This type of training is not only redundant but controlling and systematically organized i.e., there is a right and wrong answer to arithmetic problems. An anti-social personality type, by nature, does not function well with these variables of black and white but feels more comfortable in the gray areas. He finds it difficult to conform to these standards. Another study by Feinberg (1947) also concluded that socially maladjusted boys showed poorest achievement results in the area of arithmetic. Lastly, Dinitz et al. (1957) found that delinquent-prone boys had significantly less arithmetic competence than nondelinquent-prone boys.

#### SUMMARY

Emotional correlates to reading disabilities and arithmetic achievement have captured the attention of researchers and theoreticians since Blanchard's work first appeared in 1928. Since that time, a myriad of studies which reflect diverse theories of thought have expounded on

ideas concerning the relationship of emotional disturbances and academic achievement, but conclusions to the extent and nature of this relationship has remained unsolved. In summarizing the studies discussed in this paper on the relationship of psychopathology and academic achievement, it appears reasonable to conclude that:

1. A reading disability is not always accompanied with emotional disturbances.
2. There is a range of personality structure within a population of reading disabilities rather than any singular type of personality.
3. A cause-effect relationship between retardation in reading and personality maladjustment has not been established because: (a) agreement on the definitions and the assessment of personality variables has not been reached; (b) basic differences in the psychological theories have impeded the progress on a unified conclusion on causes and manifestations of personality disorders; and (c) contamination by other influences has prevented the establishment of a direct relationship between emotional factors and academic achievement.
4. Emotional difficulties are found more frequently in reading disability cases than in good readers.
5. Behavior ratings and personality tests frequently predict later educational achievements.

6. Psychotherapy is often successfully utilized as an avenue towards remediation.

7. Emotional adjustment contributes to achievement in arithmetic.

## CHAPTER III

### METHOD

The group of students from which the sample was drawn was attending the Inpatient Psychiatric Treatment Unit School at Oklahoma Children's Memorial Hospital. From the 80 students who had been enrolled in the treatment unit school from August 1, 1978, to August 1, 1980, 40 students for whom all test data were available were selected for this study. The 40 subjects which included 22 males and 18 females, were classified into three diagnostic categories according to the Diagnostic and Statistical Manual of Mental Disorders (1980). As a part of the initial diagnostic evaluation of the milieu team, an educational evaluation was conducted upon admission. All students were administered the Gates-MacGinitie Reading Test, Form I and the Arithmetic subtest on the Wide Range Achievement Test in order to assess achievement levels prior to the school program. The alternate form of the Gates-MacGinitie along with the Wide Range Achievement Test were administered as posttests the week prior to their discharge from the hospital. The Wechsler Individual Intelligence Scale

(revised) was administered to subjects for the purpose of establishing a grade expectancy level according to mental age and number of years in school.

As a part of the milieu treatment, each patient was involved in individual psychotherapy two times a week. Ratings of progressive behavior change were evaluated and reported by the respective therapists. The hypothesis was tested using data from the total standard scores obtained from the reading, vocabulary and mathematics pre and post-tests and the behavior ratings from the respective therapists. The problem of the study was to determine whether emotionally disturbed students who were patients in a psychiatric hospital experienced a change in behavior via psychotherapy; and, if any change was reflected in improvement in reading comprehension, vocabulary and mathematics achievement.

### Subjects

The 40 subjects comprising this study were classified into three diagnostic categories according to the Diagnostic and Statistical Manual of Mental Disorders. The three categories included: (a) overanxious disorders of childhood and adolescence; (b) conduct disorders; and (c) adjustment disorders. Of the 40 subjects, nine of these patients were diagnosed as having an overanxious disorder. In describing this particular disorder, "the essential

feature is a clinical picture in which the predominate disturbance is excessive worrying and fearful behavior that is not focused on a specific situation or object and that is not due to a recent psychosocial stressor. Children with this disorder may seem hypermature with their 'precocious' concerns. Perfectionist tendencies, with obsessive self-doubt, may be present; there may be excessive conformity and seeking of approval. At times, an excessive amount of motor restlessness or nervous habits appear" (DSM-III, 1980, p 55-56). Sixteen of the 40 subjects were classified in the conduct disorder category. "The essential feature in this disorder is a repetitive and persistent pattern of conduct in which either the basic rights of others or major age-appropriate societal norms or rules are violated" (Ibid, p. 45). The four subtypes which included undersocialized, aggressive; undersocialized, non-aggressive; socialized, aggressive; socialized, non-aggressive were represented in this study. The final diagnostic category involved adjustment disorders. There were 15 patients who were diagnosed in this category. The specific subtypes of adjustment disorders which were represented in this group included adjustment disorder with depressed mood, adjustment disorder with anxious mood, adjustment disorder with mixed emotional features, adjustment disorder with disturbance of conduct and adjustment disorder with withdrawal. "The diagnostic criteria for adjustment disorder is

identified as a maladaptive reaction to an identifiable psychosocial stressor. The maladaptive nature of the reaction is indicated by either of the following: 1) impairment in social or occupational functioning (school would be a substitute for occupational functioning in this age level) 2) symptoms that are in excess of a normal and expectable reaction to the stressor" (Ibid, p. 300).

In regard to reading and mathematics achievement levels and grade expectancy levels according to mental age (as determined by an individually administered IQ test) and number of years in school, it was reported following the initial diagnosis, that 34 of the 40 subjects were retarded both in reading and mathematics. The range of retardation for reading was from  $-.1$  (1 month below expectancy level) to  $-4.4$  (4 years and 4 months below expectancy level) with a  $-1.5$  (1 year and 5 months below expectancy level) mean grade score of the total reading group. In mathematics, the range of retardation was from  $-.1$  to  $-6.1$ . The mean grade score of the total mathematics group was a  $-1.5$  retardation level.

#### Instruments

The behavior rating scale which was devised by the examiner was chosen as an appropriate measure of behavioral change through psychotherapeutic intervention. The scales which measured three degrees of behavior change included: (a) patient demonstrated minimum behavioral improvement via



psychotherapy, (b) patient demonstrated gains but continued to have areas of psychopathology, and (c) patient demonstrated maximum behavioral improvement via psychotherapy. The respective therapists were asked to rate each one of their patients according to the behavioral scales. This data were limited to gains from the psychotherapeutic sessions and involved the opinion of each therapist.

The Gates-MacGinitie Reading Test surveys B,C,D,E, and F (1969 revision) was chosen to determine students' reading vocabulary and reading comprehension scores. Alternate forms of the test were available for pre and posttesting. Since the subjects of this investigation ranged in age from 8-16 years, the Gates-MacGinitie tests which matched their current grade placement were used. Therefore, the surveys B,C,D,E and F which represented various grade levels were administered for the pre and posttests. This test was a timed test which progressively became more difficult when proceeding through it. Items for the survey tests were selected on the basis of a nationwide tryout. Student responses to each of the items were tabulated, and difficulty and discrimination indices were computed for each item within each grade. Standardization was carried out in October, 1976, February, 1977, and May, 1977. The sampling plan was based on the Fourth Count of the 1970 U.S. Census, which presented data on the basis of school district boundaries. The districts were stratified according to:

(a) geographic region, (b) district enrollment size, (c) district socio-economic characteristics and (d) years of schooling completed by the adult population. A total of 86 school districts and 65,000 students participated in the norming. For each test level Alternate-forms and Kuder-Richardson Formula 20 reliability coefficients were computed. The Kuder-Richardson 20 coefficients ranged from .90 to .95 for Vocabulary and from .88 to .94 for Comprehension (Gates & MacGinitie, 1978, pp. III-IV).

The Wide Range Achievement Test (WRAT) (revised, 1978) was designed as an adjunct to tests which measured intelligence and behavior adjustment. The three subtests which comprised the WRAT included: (a) word recognition and pronunciation, (b) written spelling, and (c) arithmetic computation. The normative population which consisted of children and adults from seven states were not restricted in the basis of socio-economic, intellectual or racial populations. Clinical reliability of the WRAT coefficients varied from .90 to .95 for each subtest with an average reliability of .93. The Arithmetic subtest, the test which was used in this study for the measurement of arithmetic achievement, was found to be a reliable predictor of arithmetic ability. There was a strong relationship between facility in arithmetical computation as shown by the WRAT and mathematics grades. Additionally, persons who function at the low or high extremes of computational ability were

more easily identified and classified by the WRAT than by any other reliable method (Murphy, 1963).

### Procedures

The Gates MacGinitie Reading Surveys B,C,D,E,F, Forms 1 and 2 (1969 revision) and the arithmetic subtest on the Wide Range Achievement Test (1978 revision) were administered individually to all subjects during the initial phase of the treatment program and the week prior to their discharge from the hospital. Student responses were marked on separate handscorable answer sheets. All testing and scoring was computed by the researcher. Time limits and directions for administration were followed closely. DSM-III classifications were assigned to each subject by the primary therapist following the initial diagnostic evaluation. Therapeutic ratings on the behavioral change via psychotherapy were given by the respective therapist at the final phase of the treatment program.

## CHAPTER IV

### ANALYSIS AND INTERPRETATION OF DATA

#### Analysis of Data

This study was conducted to determine if a statistically significant difference existed between mean gain reading comprehension, vocabulary and mathematics standard scores among three diagnostic groups of psychiatric inpatient children and to determine if a statistically significant relationship existed between therapeutic ratings by the respective therapists and academic achievement. Standard scores from the pre and posttesting of the Gates-MacGinitie Reading Test and the arithmetic subtest on the Wide Range Achievement Test (Appendix A) were used for statistical analysis to measure scholastic achievement. The behavior rating scale which was devised by the examiner was used to measure behavioral improvement via psychotherapeutic intervention. The scale involved three dimensions: (a) a rating of 1 was given if the patient demonstrated minimal behavioral improvement via psychotherapy; (b) a rating of 2 was given if some gains were demonstrated but

areas of psychopathology still existed; and (c) a rating of 3 was given if the patient demonstrated maximum behavioral improvement via psychotherapy (Appendix A).

The hypothesis was concerned with differences in mean standard scores in reading comprehension, vocabulary and mathematics on pre and posttests for children residing in a psychiatric unit in regard to DSM-III classification and therapeutic ratings. To compensate for alpha error, a one-way analysis of variance was used to test the differences between the mean gain scores in reading comprehension, vocabulary and mathematics among the three diagnostic groups. The standard scores were used in the statistical analysis and a significance level of .05 was selected. The results of the statistical analysis indicated that significant mean differences existed between pre and posttest achievement scores for all three groups. The data revealed that group one (overanxious) and group two (conduct disorder) showed significant gains in reading comprehension, vocabulary and mathematics ( $\underline{z}$  score  $> 1.96$ ), and group three (adjustment disorder) showed significant gains in comprehension and mathematics ( $\underline{z}$  score  $> 1.96$ ). Overall the conduct disorder group showed the highest mean gain in academic achievement with an average mean score of 12.5. The overanxious group attained an average mean gain of 9.0 and the adjustment disorder group attained a 5.8 average mean gain in academic achievement (Table 1). This finding was

TABLE 1

A COMPARISON OF PRE AND POST STANDARD SCORES ON THE GATES  
MacGINITIE READING TEST AND THE ARITHMETIC SUBTEST  
ON THE WIDE RANGE ACHIEVEMENT TEST FOR THREE  
DIAGNOSTIC GROUPS

	Pre		Post		Gains		
Subscales	Mean	S.D.	Mean	S.D.	Mean	S.D.	Z Score
Over-anxious Group N=9							
Comp.	4.11	12.00	48.44	10.63	7.33	4.12	5.02
Voc.	42.56	9.44	47.22	8.82	4.66	4.38	3.40
Math	81.33	14.90	96.33	20.94	15.00	11.70	3.85
Conduct Disorder Group N=16							
Comp.	38.25	15.00	50.06	12.49	11.81	8.96	5.27
Voc.	37.62	9.86	49.31	9.42	11.68	8.29	5.64
Math	80.75	18.32	94.75	17.16	14.00	12.53	4.47
Adjustment Disorder Group N=15							
Comp.	44.33	9.96	48.00	7.62	3.66	5.20	2.73
Voc.	46.80	11.17	48.93	10.93	2.13	4.64	1.84
Math	82.93	15.39	94.60	16.05	11.66	7.64	5.91

in contrast to the research studies reported in the literature where it was discovered that students demonstrating conduct disorder performed poorly in academic achievement.

A one-way analysis of variance which is a general linear model was utilized to determine if the groups differed significantly at a .01 significance level according to each dependent variable: reading comprehension, vocabulary, mathematics and behavioral rating scales. The results showed significant differences among groups on comprehension ( $F = 5.49$ ,  $df = 2$ ,  $p < .01$ ) and vocabulary ( $F = 9.40$ ,  $df = 2$ ,  $p < .01$ ). However, the mean differences among the groups on mathematics failed to reach significance ( $F = .32$ ,  $df = 2$ ) and the differences among groups according to the behavior rating scales failed to reach a level of significance (Tables 2 & 3).

A one-way analysis of variance determined only that the groups were different. Therefore, Scheffe's test, a post hoc comparison, was computed to determine which of the differences among group means were significant after a significant F ratio had been obtained. The multiple comparison procedure adjusts the level of significance to reduce the influence of chance due to having more than just one comparison (Huck et al., 1974). Since the interaction found with the comprehension gain scores and the vocabulary gain scores among the three diagnostic groups were

TABLE 2

THE RESULTS OF MEAN GAIN SCORES ON ACHIEVEMENT  
PRE AND POSTTESTS OF THREE DIAGNOSTICALLY  
CATEGORIZED GROUPS

	<u>Group 1</u> <u>Over-</u> <u>anxious</u>	<u>Group 2</u> <u>Conduct</u> <u>Disorder</u>	<u>Group 3</u> <u>Adjustment</u> <u>Disorder</u>		
Subscales	Mean Gain Score	Mean Gain Score	Mean Gain Score	F value	P > F
Compre- hension	7.3	11.9	3.7	5.49	.0082*
Vocabulary	4.7	11.7	2.1	9.40	.0005*
Math	15.0	14.0	11.7	.32	.73
BRS	2.1	1.6	2.0	2.02	.15

\* Significant at the .01 Confidence Level



TABLE 3

SUMMARY TABLE OF ANALYSIS OF VARIANCE OF MEAN READING  
COMPREHENSION, VOCABULARY AND MATHEMATICS  
STANDARD SCORES AND BEHAVIOR RATINGS  
AMONG THREE DIAGNOSTIC GROUPS

COMPREHENSION GAIN					
Source	SS	df	MS	F	P
Between	515.73	2	257.86	5.49	.0082*
Within	1737.77	2	46.97		
Total	2253.50	4			

\* Significant at the .01 confidence level

VOCABULARY GAIN					
Source	SS	df	MS	F	P
Between	746.80	2	373.40	9.40	.0005*
Within	1469.17	2	39.71		
Total	2215.98	4			

\* Significant at the .01 confidence level

MATHEMATICS GAIN					
Source	SS	df	MS	F	P
Between	73.77	2	36.88	.32	.7285
Within	4271.33	2	115.44		
Total	4345.10	4			

BEHAVIOR RATING SCALES					
Source	SS	df	MS	F	P
Between	2.27	2	1.14	2.02	.1471
Within	20.83	2	.56		
Total	23.10	4			

statistically significant at a .01 significance level, these two dependent variables were isolated to determine which of the differences among group means were significant. The results indicated that significant differences in comprehension gain scores were found among the adjustment disorder and the conduct disorder groups ( $F(15, 4) = 11.02, p < .01$ ). Groups one (overanxious) and two (conduct disorder) and groups one (overanxious) and three (adjustment disorder) showed no significant differences in mean gain scores. The significant differences which were found among the groups in vocabulary gain scores included the overanxious and the conduct disorder groups ( $F(8, 15) = 7.13, p < .01$ ) and the adjustment disorder and conduct disorder groups ( $F(15, 14) = 17.86, p < .01$ ). Groups one (overanxious) and three (adjustment disorder) showed no significant differences in mean gain scores ( $F(8, 14) = .22, p > .01$ ).

A Pearson product-moment correlation was computed to determine if statistically significant relationships existed between therapeutic ratings by the respective therapists and gain scores in academic achievement (Table 4). The correlation values ( $r$ ) showed no significant relationships between gain scores in comprehension, vocabulary and mathematics and the behavior rating scales. Additionally, the correlation values between behavior rating scales and comprehension gain ( $r = -0.11$ ) and

TABLE 4  
CORRELATION MATRIX CONCERNING PRE POST AND GAIN ACHIEVEMENT SCORES AND BEHAVIOR RATING

	BC	BV	BM	AC	AV	AM	BRS	GV	GC	GM
BC	1.000	.809	.407	.800	.670	.443	.211	-.301	-.584	.099
BV	.809	1.000	.474	.625	.735	.499	.320	-.491	-.499	.088
BM	.407	.474	1.000	.427	.437	.802	.108	-.119	-.099	-.222
AC	.798	.625	.427	1.000	.747	.581	.177	.063	.024	.295
AV	.670	.735	.437	.747	1.000	.545	.235	.229	-.104	.220
AM	.443	.499	.802	.581	.545	1.000	.121	-.016	.049	.405
BRS	.211	.320	.108	.177	.235	.121	1.000	-.158	-.112	.032
GV	-.301	-.491	-.119	.063	.229	-.016	-.158	1.000	.583	.156
GC	-.583	-.499	-.099	.024	-.104	.049	-.112	.583	1.000	.232
GM	.098	.088	-.222	.295	.220	.405	.032	.156	.232	1.000

vocabulary gain ( $r = -0.16$ ) indicated an inverse relationship existed but it was not significant statistically. The correlation coefficient computed for mathematics and the behavior rating scales was  $r = -.03$  which was not significant at the .05 level of significance.

#### Summary of Data Analysis

An analysis of variance, a post hoc comparison and a Pearson product-moment correlation were used to test the hypothesis that there are no statistically significant differences in mean standard scores in reading comprehension, vocabulary and mathematics on pre and posttests for children in the psychiatric unit in regard to DSM-III classification and therapeutic ratings. Results revealed that statistically significant differences did exist among groups according to mean gain reading comprehension, vocabulary and mathematics scores, but a statistically significant relationship between the therapeutic ratings and gain values in academic achievement did not exist at the .05 level. Therefore, the null hypothesis was considered tenable.

## CHAPTER V

### SUMMARY, CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

#### Summary

The problem of the study was to determine whether there were significant mean differences in educational achievement in reading comprehension, vocabulary and mathematics among psychiatric inpatient children according to diagnostic categories as outlined in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition and therapeutic ratings given by the respective therapists. The purpose of the study was to determine if children residing in psychiatric wards are able to substantially increase scholastic achievement levels.

The testing instruments used in this study were the Gates MacGinitie Reading Test Surveys B,C,D,E,F, Forms 1 and 2 and the arithmetic subtest on the Wide Range Achievement Test. The instruments were administered as pre and posttest assessments. The 40 subjects comprising this study ranged in age from 8-16 years with educational grade levels ranging from third to tenth grades. At the onset of the treatment, 34 of the 40 subjects (85%) were retarded

both in reading and mathematics according to mental age and number of years in school. All subjects were classified into three diagnostic categories according to the DSM-III.

Mean standard scores from the achievement test and behavior ratings by the respective therapists among the three diagnostic groups were used for comparison of differences among the three groups. Significant differences in means were found among groups according to reading comprehension and vocabulary, but relationships between therapeutic ratings and gain values in academic achievement did not exist.

The following is a delineation of the findings which were obtained from the study:

1. The three diagnostic groups (overanxious, conduct disorder and adjustment disorder) showed a substantial increase in academic achievement while residing in an inpatient psychiatric treatment unit.
2. The overanxious and conduct disorder groups showed significant growth in reading comprehension, vocabulary and mathematics.
3. The adjustment disorder group showed significant growth in reading comprehension and mathematics.
4. Differences among groups on comprehension and vocabulary revealed significant differences; however, differences among groups in mathematics and behavior rating scales failed to reach significance.

5. A relationship between the therapeutic ratings and academic achievement were not significant.

### Conclusions and Discussion

As a result of this study it was concluded that psychiatric inpatient treatment at Oklahoma Children's Memorial Hospital was efficacious in enhancing academic achievement. The factors which played important roles in the selected subjects' achievement included: (a) the 24 hour therapeutic environment which was provided for each patient; (b) the cooperation and support from the treatment unit staff; (c) the prescriptive classroom planning for each student; (d) the low student-teacher ratio; (e) the behavioral management techniques and (f) the control of class attendance.

This study corroborated with the research reported in the review of literature concerning a concomitant relationship between poor reading and mathematics and emotional disturbance. At the onset of the treatment, 85% of the total subjects were retarded both in reading and mathematics according to grade expectancy levels. Additionally, there was no single personality pattern which was descriptive of the subjects who were retarded in reading and mathematics. Therefore, a single personality maladjustment cannot be isolated to explain the development of a reading or mathematics disability. Contrary to

research studies reported in the literature, the subjects who were diagnosed as having a conduct disorder showed the highest gain in academic achievement.

### Recommendations

From the results of this study, the following recommendations are proposed:

1. Further investigative efforts might be directed toward the measurement of behavioral change via psychotherapy by means of more appropriate instruments by which the behavior change can be measured.
2. The subjects involved in this study had returned to their respective home schools following treatment from the psychiatric unit. It seems plausible that further investigation of this study would include a follow-up report of academic achievement one year post discharge from the hospital.
3. A psychoeducational model which incorporates behavioral interventions, positive management techniques, prescriptive teaching and therapeutic student-teacher relationships is recommended in classrooms for the emotionally disturbed.



## BIBLIOGRAPHY

- Abrams, Jules. Reading and the Emotionally Handicapped Child. Highlights of a special study institute. Washington, D.C.: Department of Health, Education and Welfare, 1970, New York: 10, 5-7.
- Abrams, Jules, C. The role of personality defenses in reading. In G. Natchez (Ed.), Children with reading problems. New York: Basic Books, Inc., 1968.
- American Psychiatric Association. DSM-III: Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, D.C.: American Psychiatric Association, 1980.
- Atwell, A. A., Orpet, R. E. & Myers, C.E. Kindergarten behavior ratings as a predictor of academic achievement. Journal of School Psychology, 1967, 6, 43-46.
- Balow, B. The emotionally and socially handicapped. Review of Educational Research, 1966, 36, 120-133.
- Bills, R. E. Non-directive play therapy with retarded readers. Journal of Consulting Psychology, 1950, 14, 140-149.
- Blanchard, P. Reading Disabilities in relation to maladjustment. Mental Hygiene, 1928, 12, 772-733.
- Blanchard, P. Psychogenic factors in some cases of reading disability. American Journal of Orthopsychiatry, 1935, 5(4), 361-374.
- Blanchard, R. J. Reading disability in relation to difficulties of personality and emotional development. Mental Hygiene, 1936, 20, 384-413.
- Blau, A. The master hand. American Orthopsychiatric Association Research Monographs, 1946, No. 5.
- Bodwin, R. F. The relationship between immature self-concept and certain educational disabilities (Doctoral dissertation, East Lansing Michigan State University, 1957). Dissertation Abstracts, 1959, 19, 1645-1646.
- Brueckner, L. J. & Bond, G. L. The diagnosis and treatment of learning difficulties. New York: Appleton- Century Crafts, 1955.

- Camp, B. W. & Zimet, S. G. Classroom behavior during reading instruction. Exceptional Children, 1975, 42(2), 109-110.
- Capps, L. R. A comparison of superior achievers and underachievers in arithmetic. Elementary School Journal, 1962, 63, 141-145.
- Carrithers, L. M. Beginning reading patterns and preschool emotional problems. Educational Horizons, 1965, 44, 3-9.
- Cleveland, G. A. & Bosworth, D. L. A study of certain psychological and sociological characteristics as related to arithmetic achievement. Arithmetic Teacher, 1967, 14, 383-387.
- Critchley, M. Developmental dyslexia: A constitutional dyssymbolia. In A. W. Franklin (Ed.), Word Blindness or Specific Developmental Dyslexia. London: George Heinmann, 1962.
- Cutts, W. G. A comparative study of good and poor readers at the middle grade level (Doctoral dissertation, Syracuse University, 1956). Dissertation Abstracts, 1956, 16, 1855.
- Davids, A., & Berenson, J. K. Integration of a behavior modification program into a traditionally oriented residential treatment center for children. Journal of Autism and Childhood Schizophrenia, 1977, 7(3), 269-285.
- Diehi, W. Counseling and reading: Historically Considered: Occasional Papers in Language and Reading Education. Bloomington, Indiana: Indiana University, 1979.
- Dinitz, S., Kay, B., & Reckless, W. Delinquency proneness and school achievement. Educational Research Bulletin, 1957, 36, 131-136.
- Farmer, C. R., & Garfield, S. L. The relationship between ability to read and the meaning and expression of emotion. Journal of Learning Disabilities, 1971 4(10), 558-562.
- Feinberg, H. Achievement of a group of socially maladjusted boys as revealed by the Stanford Achievement Test. Journal of Social Psychology, 1947, 26, 203-212.

- Feldhuzen, J. F., Thurston, J. R., & Benning, J. J. Aggressive classroom behavior and school achievement. Journal of Special Education, 1970, 4, 431-439.
- Fisher, B. An investigation of the effectiveness of group therapy for the remediation of reading disability (Doctoral dissertation, New York University, 1953). Dissertation Abstracts, 1953, 13, 590-591.
- Gates, A. I., & Bond, G. L. Failure in reading and social maladjustment. Journal of the National Educational Association, 1936, 25, 205-206.
- Gates, A. I., & MacGinitie, W. H. Manual for Gates-MacGinitie reading tests. New York: Teachers College Press, 1969.
- Graubard, P. S. An investigation of reading correlates of emotionally disturbed and socially maladjusted children: The relevance of a classification. Scheme to Educational Characteristics, Grant No. 1-6 062542-1589 October, 1968. Yeshiva University, New York. U.S. Department of Health, Education and Welfare, Office of Education.
- Griggs, S. Improving instruction and services for socially maladjusted children. Brooklyn, New York: New York City Board of Education, Office of Education Evaluation, 1975.
- Haring, N. The emotionally disturbed. In S. Kirk and B. Weiner (Eds.), Behavioral research on exceptional children, Washington, D.C.: The Council for Exceptional Children, 1963.
- Harris, I. D. Emotional blocks to learning. New York: Free Press, 1961.
- Hicks, J. S. Individualized instructional program for emotionally disturbed children unable to participate in formal educational programs. Brooklyn, New York: New York City Board of Education, Office of Educational Evaluation, 1977.
- Hinsie, L. E., & Campbell, R. J. Psychiatric dictionary. New York: Oxford University Press, 1970.
- Hucks, S. W., Cormier, W. H., & Bounds, W.G. Reading statistics and research. New York: Harper and Row, 1974.

- Jastak, J. Wide range achievement test manual. Wilmington: Charles L. Story, 1946.
- Jastak, J. F., & Jastak, S. Wide range achievement test. Los Angeles: Western Psychological Services, 1978.
- Jones, R., Maertens, N. W. & Hotchkiss, J. M. A diagnostic and activity based arithmetic program for emotionally disturbed children (U.S. O.E. Grant No. OEG-0-9-470117-3664 [721]). Grant with Office of Education, U.S. Department of Health, Education and Welfare, University of Oregon, Eugene, Oregon, 1971.
- Kolder, C. The effectiveness of academic planning as a means of control with the emotionally handicapped children. Paper presented at the 57th Annual International Convention Council for Exceptional Children, Dallas, Texas, April 22-27, 1979.
- Kolvin, J., Garside, R. F., Nicol, A. R., Leitch, I., & MacMillan, A. Screening schoolchildren for high risk by emotional and educational disorder. British Journal of Psychiatry, 1977, 131, 192-206.
- Konopasek, D. E. Educational programming at Alaska Psychiatric Institute. Paper presented at the 57th Annual Convention of Council for Exceptional Children, Dallas, Texas, April 19, 1979.
- Lambert, N. M., & Urbanski, C. Behavioral profiles of children with different levels of achievement. Journal of School Psychology, 1980, 18(1), pp. 58-65.
- Lane, E., & Albee, G. Childhood intellectual differences between schizophrenic adults and their siblings. American Journal of Orthopsychiatry, 1966, 35, 160-169.
- Lane, H. A., & Witty, P. A. The educational attainment of delinquent boys. Journal of Educational Psychology, 1934, 25, 695-702.
- Maes, W. R. The identification of emotionally disturbed elementary school children. Exceptional Children, 1966, 32, 607-609.
- Monroe, M. Children who cannot read. Chicago: University of Chicago Press, 1932.
- Monroe, M., & Backus, R. Remedial Reading: A Monograph in Character Education. Boston: Houghton-Mifflin Co., 1937.

- Morse, W. C., Cutler, R. L., & Fink, A. Public School Classes for the Emotionally Handicapped: A Research Analysis. Washington: The Council for Exceptional Children, 1964.
- Motto, J. J., & Lathan, L. An analysis of children's educational achievement and related variables in a state psychiatric hospital. Exceptional Children, 1966, 32, 619-623.
- Mullen, F. A. Truancy and classroom disorder as symptoms of personality problems. Journal of Educational Psychology, 1950, 41, 97-109.
- Murphy, G. M. An investigation of the mathematics subtest from the Wide Range Achievement Test as applied to intermediate level mathematics groups (unpublished report, January, 1963).
- Noland, M., & Gruber, J. J. Academic achievement, personality and behavior in emotionally disturbed children. American Corrective Therapy Journal, 1976, 30(6), 182-186.
- Northcutt, J. R., & Tipton, G. B. Teaching severely mentally ill and emotionally disturbed adolescents. Exceptional Children, 1978, 45, 18-23.
- Oklahoma Children's Memorial Hospital, Mental Health Services, Inpatient Treatment Unit, Policy Manual, 1980.
- Page, J. D. Emotional factors in reading disability. Education, 1975, 72, 590-595.
- Pond, D. Communication disorders in brain damaged children. Proceedings of Royal Society of Medicine, 1967, 60, 343-348.
- Quay, H. C., Mors, W. C., & Cutler, R. L. Personality patterns of pupils in special classes for the emotionally disturbed. Exceptional Children, 1966, 32, 297-301.
- Rabinovitch, R. D. Educational achievement in children with psychiatric problems. Bulletin of the Orten Society, 1964, 14, 1-5.
- Reinert, H. R. Children in conflict. St. Louis: The C. V. Mosby Company, 1976.

- Rutter, M., Tizard, J., & Whitmore, K. Education, health and behavior: Psychological and medical study of childhood development. London: Harlow, Longman, 1970.
- Schroeder, L. B. A study of relationships between five categories of emotional disturbance and reading and arithmetic achievement. Exceptional Children, 1965, 32, 111-112.
- Shinota, H. E. Reading skills in emotionally disturbed institutionalized adolescents. Journal of Educational Research, 1964, 58, 106-111.
- Seeman, J., & Edwards, B. A therapeutic approach to reading difficulties. Journal of Consulting Psychology, 1954, 18, 451-453.
- Singer, E., & Pittman, M. A Sullivanian approach to the problem of reading disability: Theoretical considerations and empirical data. In G. Natchez (Ed.), Children with reading problems. New York: Basic Books, Inc., 1968.
- Spache, G. D. Personality patterns of retarded readers. Journal of Educational Research, 1957, 50, 461-469.
- Sperry, B., Staver, N., Reiner, B., & Ulrich, D. Denunciation and denial in learning difficulties. American Journal of Orthopsychiatry, 1958, 28, 98-111.
- Stone, B. F., & Rowley, V. N. Educational disability in emotionally disturbed children. Exceptional Children, 1964, 30, 423-426.
- Swain, C. The Agony and the Ecstasy - The teacher of emotionally handicapped adolescents in a residential treatment setting. Paper presented at the Council for Exceptional Children's 57th Annual International Convention, Dallas, Texas, April 22-27, 1979.
- Swift, M., & Spivack, G. The assessment of achievement related classroom behavior. Journal of Special Education, 1968, 2, 137-54.
- Swift, M., & Spivack, G. Achievement related classroom behavior of secondary school normal and disturbed students. Exceptional Children, 1969, 36, 99-104.
- Sylvester, E. & Kunst, M. Psychodynamic aspects of the reading problem. In G. Natchez (Ed.), Children with reading problems. New York: Basic Books Inc., 1968.

- Tamkin, A. S. A survey of educational disability in emotionally disturbed children. Journal of Educational Research, 1960, 54, 67-69.
- Veltfort, H. R. Some personality correlates of reading disability. Unpublished doctoral dissertation, Stanford University, 1956.
- Werry, J. S., & Quay, H. C. Observing the classroom behavior of elementary school children. Exceptional Children, 1969, 35, 461-470.
- Williamson, A. P. Emotional adjustment as a factor in reading. The Clearinghouse, 1979, 52(6), 250-253.
- Wood, C. D. Individualized education behavioral management in the classroom and psychotherapy for the emotionally disturbed and behavioral disorder of the child. Paper presented at the 57th Annual International Convention, The Council for Exceptional Children, Dallas, Texas, April 22-27, 1979.
- Wottenberg, W. V. & Clifford, C. Relation of self-concept to beginning achievement in reading. Child Development, 1964, 35, 401-407.

APPENDIX A

PRE AND POST STANDARD SCORES ON THE GATES-MacGINITIE  
READING TEST AND THE ARITHMETIC SUBTEST ON THE  
WIDE RANGE ACHIVEMENT TEST AND BEHAVIOR  
RATINGS FOR THREE DIAGNOSTIC GROUPS



TABLE 5

A COMPARISON OF PRE AND POST STANDARD SCORES AND BEHAVIOR RATING ON  
 THE GATES-MacGINITIE READING TEST AND THE ARITHMETIC SUBTEST ON  
 THE WIDE RANGE ACHIEVEMENT TEST FOR THREE DIAGNOSTIC GROUPS

Over- anxious	Pre Comp	Pre Voc	Pre Math	Post Comp	Post Voc	Post Math	Behavior Rating
1	30	34	77	37	40	90	1
2	20	22	56	27	28	66	1
3	46	45	79	52	45	93	3
4	55	52	80	55	55	92	3
5	49	43	72	58	52	103	1
6	44	47	92	57	57	99	2
7	53	52	105	56	49	143	3
8	29	46	73	43	51	80	3
9	44	42	98	51	48	101	2

TABLE 6

A COMPARISON OF PRE AND POST STANDARD SCORES AND BEHAVIOR RATING ON  
 THE GATES-MacGINITIE READING TEST AND THE ARITHMETIC SUBTEST ON  
 THE WIDE RANGE ACHIEVEMENT TEST FOR THREE DIAGNOSTIC GROUPS

Conduct Disorder	Pre Comp	Pre Voc	Pre Math	Post Comp	Post Voc	Post Math	Behavior Rating
1	38	32	54	42	51	71	1
2	28	30	82	41	39	89	1
3	60	41	120	75	55	133	1
4	23	36	92	30	42	99	1
5	37	32	77	49	52	98	2
6	56	46	64	56	60	75	2
7	44	46	81	61	57	93	1
8	40	47	92	46	52	100	2
9	40	49	83	61	61	124	1
10	46	41	98	58	44	105	2
11	20	20	43	46	45	87	3
12	20	28	98	51	57	105	2
13	29	34	71	40	40	75	2
14	19	25	76	30	26	75	1
15	42	38	87	48	50	93	1
16	70	57	74	67	58	94	2

TABLE 7

A COMPARISON OF PRE AND POST STANDARD SCORES AND BEHAVIOR RATING ON  
 THE GATES-MacGINITIE READING TEST AND THE ARITHMETIC SUBTEST ON  
 THE WIDE RANGE ACHIEVEMENT TEST FOR THREE DIAGNOSTIC GROUPS

Adjustment Reaction	Pre Comp	Pre Voc	Pre Math	Post Comp	Post Voc	Post Math	Behavior Rating
1	37	54	88	46	51	117	1
2	41	47	84	48	46	96	2
3	56	51	91	49	59	103	1
4	34	38	62	48	38	73	1
5	48	52	67	50	51	76	2
6	50	59	73	57	55	93	3
7	42	44	93	46	50	93	3
8	59	62	117	57	61	116	3
9	34	30	66	40	33	71	2
10	48	41	75	50	38	94	2
11	28	31	83	32	37	97	2
12	42	48	78	40	47	87	2
13	57	53	88	57	58	100	1
14	56	63	108	59	72	124	3
15	33	29	71	41	38	79	2