Task-Oriented Counseling Experiences for Slow-Learning Third Graders

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TA ORIENTED COUNSELING EXPERIENCES
FOR SLOW-LEARNING THIRD GRADERS

by

Jennybelle Picket Rardin

A Dissertation Submitted to the Faculty of the Graduate School
Loyola University, in partial fulfillment of the requirements
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LIFE

Jennybelle Picket Ray was born on April 28, 1937 in Columbus, Ohio. She attended public grammar and secondary schools receiving her diploma in 1955. She attended Ohio Wesleyan University from 1955 to 1957. She completed her undergraduate training at Loyola University of Chicago and received the M. Ed. degree in 1968.

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TASK-ORIENTED COUNSELING EXPERIENCES FOR SLOW-LEARNING THIRD GRADE PUPILS

Jennybelle Picket Rardin
Loyola University, Chicago, 1971

ABSTRACT

The purpose of this study was to investigate and evaluate the effects of a series of task-oriented counseling experiences with slow-learning third grade pupils. The purpose of the task-oriented counseling experiences was to provide "learning readiness experiences" which would contribute towards changing these pupils' self-concept within the school setting from negative to positive and from failing to succeeding.

Forty-eight "Primary Z" pupils (i.e. pupils not able to complete satisfactorily third grade work and who are given two or two additional years before promotion to the fourth grade) were selected from one school in one district of the Chicago Public Schools. These pupils were all classified as slow learners. There were no "mentally retarded" nor physically handicapped pupils in the two samples of twenty-four. The samples were drawn from two P.Z. rooms, taught by two teachers, randomly assigned within each room to one of two treatment groups (i.e. counseling and non-counseled).

A series of eight group and two individual task-oriented counseling experiences was conducted with these pupils over...
period of six weeks. The experiences were designed to facilitate personal investment in the learning process. Specific objectives of the methodology used were: 1) to create an atmosphere of acceptance and belonging, 2) to create a successful learning pattern through the programming of the experiences, 3) to respond to spontaneous expressions of each pupil—negative and positive, as well as cognitive and affective, and 4) to create a sense of responsibility in each pupil for his own learning.

Data for the study was obtained from the following instruments: The Raven's Coloured Progressive Matrices, The Currell Analysis of Reading Difficulty—Visual Memory, The Gates-McKillop Reading Diagnostic Tests—Auditory Discrimination, and The Metropolitan Achievement Tests—Word Knowledge, Word Discrimination, and Spelling. A 2 x 2 analysis of variance was applied to each of the six measures.

The data revealed a statistically significant difference between counseled and non-counseled groups as measured by the Raven test (p .05). There was no interaction between the counseled groups and the teacher groups which allows for the interpretation that the counseling did effect performance on the Raven test. Since the Raven's corresponds to Spearman's "g" factor—a notion or "general learning ability," the finding in the present study would seem to warrant further investigation. It might indicate guidelines for structuring learning experiences to further general learning ability.
CHAPTER I

INTRODUCTION

Statement of the Problem

There is general agreement among educators that negative attitudes towards school experiences and failure in learning are being consistently experienced by approximately twenty per cent of school age pupils (Havighurst, 1958; Witty, 1961; N.E.A., 1964). One author (Lafferty, 1968) suggests a figure as high as sixty per cent and indicates that these students "in the process of education grow more steadily towards dislike."

Twenty years ago a startling statement was made to the effect that there existed then an inadequacy in our educational system (Taba, 1963):

... In 1950 Allison Davis made a dramatic impact on the audience at the White House Conference on Education by declaring that 40% of children go through school untouched by it except for acquiring a meager literacy. As characters, as persons, as possessors of academic competency, they might just as well not have been in school.

More recent figures indicate that twenty per cent of our students fit into the category of "slow-learners" (St., 1967).

An important component within the matrix of style learning pace. For teachers throughout America, it re
is perhaps no problem of greater concern than that of the so-called slow learner. This unsatisfactory term has come into general use to designate anyone equipped with less than average capacity to learn. Usually students are so classified when, on repeated measures of scholastic aptitude, an I.Q. between 80 and 95 is indicated. The relation of this problem to school instruction comes into sharp focus upon recognition that one child in every five is a slow learner.

This group of students which is the focus of the present study--slow-learning, inner-city, culturally deprived--has been of extreme concern to educators as will be pointed out in the next chapter in the review of the literature. One of the major concerns which should be pointed out in the present chapter is that this population poses serious difficulties in terms of evaluation and measurement of achievement. Existing instruments of measurement (i.e. standardized achievement tests) are heavily biased in the direction of past learning environments and past learning experiences which this population has not had.

Commenting on this bias Cronbach states:

... the use of tests dependent upon past schooling and school-related behavior denies many children a fair opportunity. Children who do well on mental tests are encouraged by the teacher (i.e. they expect more from these students) and if they have trouble with school work a special study of their difficulties is made. If a child with a poor mental test record on the other hand, has trouble with schoolwork, the teacher is likely to accept this as natural and make no deeper inquiry. The child who could do better schoolwork than he has done in the past is neglected just because the poor background lowers his mental test score ... On mental tests (i.e. Kuhlman Anderson) the average middle class child does better than the average lower class child. Davis thinks that this social class difference results from the way the tests
are constructed rather than from deficiencies in reasoning ability among the lower class children. . . . This implies that some types of reasoning tests handicap the lower class child more than others.

The above comment not only points to the inadequacy of such tests but also implies the notion that the intelligence of a pupil is a given which the teacher has to work with. In other words, the teacher has so much initial capacity to work with and expectations of performance may tend to be proportionate to capacity. However, this notion of a "fixed intelligence" is unquestioned (Hunt, 1961):

The concept of fixed intelligence and of predetermined development have both rested on the assumption that unlearned behavior patterns and various capacities are somehow derived directly automatically, and more or less completely from somatic cerebral structures and their functional properties. There is no question that somatic and cerebral structures with their functional properties are important, but it has become more and more clear that experience is required for the development of these behavioral patterns and capacities, and especially for the development of those central organizations for the processing of information that are required to solve problems.

Following this line of reasoning, namely that teachers may consciously or unconsciously accept the notion of "fixed intelligence"; that as a consequence their attitude and actions may reflect this limit to their pupils; that pupils especially in the inner-city know the consequences of these test scores on school placement and future options, it is not hard to understand that their test motivation may be strongly influenced in a negative direction. Eells (1951) has commented:
... when the middle class child comes to a test he has been taught to do his best on it. Life stretches ahead of him as a long series of tests, and he must always work himself to the very limit on them. To the average lower-class child, on the other hand, a test is just another place to be punished, to have one's weaknesses shown up, to be reminded that one is at the end of the procession. Hence this child soon learns to accept the inevitable and to get it over with as quickly as possible. Observations of the performance of lower class children on speed tests leads one to suspect that such children often work very rapidly through a test, making responses more or less at random. Apparently they are convinced in advance that they cannot do well on the test, and they find that by getting through the test rapidly they can shorten the period of discomfort which it produces.

In light of this inherent difficulty in measuring growth and achievement for this particular population four instruments were chosen for the present study in an attempt to evaluate three primary areas of concern. These were: 1) a general learning ability; 2) subject matter (i.e. spelling) and educational proficiencies (i.e. word knowledge and word discrimination); and 3) learning readiness skills (i.e. visual memory and auditory discrimination). Detailed descriptions of these instruments can be found in Chapter IV and Appendix C.

The purpose of this study was to investigate and evaluate the effects of a series of task-oriented counseling experiences with these slow-learning third grade pupils. The purpose of the task-oriented experiences was to provide "learning readiness experiences" which might contribute towards changing these pupils' self-concept within the school setting from negative
to positive and their performance pattern from failing to succeeding.

The term "learning readiness experiences" is used in this study to mean those experiences which provide an atmosphere which facilitates "entry" into the learning experience. This might also be described in terms of "a sense of belonging." In other words, the primary intention of the counselor in these task-oriented sessions was to accept entry into the learning experience in whatever manner it presented itself through each pupil. This atmosphere and relationship has been described by Curran (1968) as:

... a relationship which engages us in a real concern for the other and a conscious effort to convalidate his worth and dignity. Such a relationship, by definition, involves adequate communication. It is not enough, therefore, simply to wish another well ... to be concerned and "care" about him. This caring must be repeatedly conveyed in communication, so that he is and feels himself understood and accepted at the unique level of himself.

Lest the phrase "accept entry into the learning experience in whatever manner it presented itself" be misunderstood, it should be clarified that this acceptance did not mean a sense of no limits at all. It meant in this study that the counselor was conscious of the three following reasons explaining some of the pupils' behavior and therefore that the counselor would accept the pupils in spite of what might be considered their misbehavior or negations. The counselor viewed these initial responses as their only means of entering a new learning
situation. The following three reasons are proposed here to suggest why the slow-learner is feeling as he does and performing as he does:

1) He is told in a variety of ways that something is wrong with him. He cannot keep pace with his classmates and friends. He is convinced that to be considered a "good" student he must succeed in his school work. Year after year it becomes clearer to him, the school teachers, his friends, his parents, that he is not achieving as the others are. He eventually concludes that something is wrong with him, and begins acting as if something is wrong, at least in the school setting.

2) He is introduced to tasks which he is not ready to handle successfully. Many slow-learners have not had the necessary background experiences which would prepare them to achieve in the school setting. Often other tasks are substituted in which they can succeed but which have little personal meaning. Consequently, it seems that for those who cannot tolerate the humiliation of almost certain failure in prescribed school activities nor the isolation of "substitute" activities, there are two behavioral alternatives. One is a withdrawal pattern, and the other is an aggressive pattern. However, both are self-defeating in the school setting because they are not focused on the learning task and are most often considered "problem behavior."
3) He is limited in his opportunities to respond freely and responsibly. Since it is apparent in his "problem behavior" that he lacks control over himself and his learning potential, it is logical that someone else take over until he is able to do so. However, there is little chance to gain such control unless one has the power and the opportunity to try. Consequently, because slow-leaners do not learn as the others do, they are not given options to take responsibility for their own learning, growth and behavior.

Therefore, the counselor is not only aware that these three kinds of experiences probably are behind a negative attitude towards the self and the learning experience but also there is an intense pain caused by the difficulty experienced by the slow-learner in investing himself in, centering and maintaining his attention on, and succeeding in the learning task. These may all be complicated by an extreme anxiety in not being able to learn in the "normal" pattern.

It was because of these awarenesses that a "counseling-learning" model was selected for these pupils. It was felt that this model which will be described shortly addressed itself to the basic conditions of the slow-learner as well as to basic factors fundamental to learning.
The Counseling-Learning Model

Initial interest in adapting this model for these pupils was generated from research employing a counseling-learning model in the learning of foreign languages (Curran, 1960, 1968). This model is designed not only to counterbalance the negative forces in learning but also to transform them into positive forces. This approach focuses on the concept of conveying worth and importance to each pupil. This is communicated and reflected in a number of ways. Worth, dignity, and respect are consciously and directly communicated by the "learning-counselor." The importance of each pupil in the group is conveyed through the task demands in which each pupil is responsible for his contribution to the overall task. Each one has to become skilled and the learning of this skill is reinforced so that the student achieves a sense of mastery. Responsibility is communicated by the various options from which the pupils may choose and is also reinforced by the tasks as well as the entire structure within which the group participates. Therefore, each aspect of the experiences is designed to communicate to the student that he is important, that he has something worthwhile to share with the others, and that others have something worthwhile to share with him, and that he can succeed. He is responsible and can choose responsibly when given the option.
The counseling-learning model used in this study is essentially a positive model emphasizing psychological strengths. It is also called a "task-oriented" model because it is through the tasks that the experience occurs—in this study it was through the use of the Chromacord R which is described in Appendix A. The essential characteristics of this counseling-learning model as it was adapted for this particular study are:

1) There is a personal learning relationship established between the learner and "learning-counselor" as well as between learner and learner.

2) This personal learning relationship is established through the tasks and apparatus designed for "self-invested" learning.

3) The learning structure is dynamic and allows for responsible choices which can alter the relationship and experience.

As stated at the beginning of this chapter the purpose of these task-oriented counseling experiences was to facilitate a change in performance pattern. It was felt this might be accomplished if several factors operating simultaneously were introduced. These factors are:

1) A "team" learning apparatus (the Chromacord R) and tasks designed to give each pupil maximum control and freedom of choice within a cooperative and encouraging structure.
2) An adult in the group who helped the students constructively handle the complex feelings, both positive and negative, inherent in the group learning task.

3) Freedom to act independently and make choices which affected the members of the group and the common task.

If these three factors are successfully put into operation in the task-oriented experiences, then these pupils should begin to feel worthwhile, important, capable of achieving and this result could be measured as changes in observation and clear thinking, word knowledge, word discrimination, spelling, visual memory and auditory discrimination. The intention then of this study is to report these changes and any other findings.

Hypotheses

The following specific null hypotheses were tested:

1) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Raven's Coloured Progressive Matrices.

2) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Metropolitan Achievement Tests in Word Knowledge, Word Discrimination, and Spelling.

3) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these
experiences as measured by the Durrell Analysis of Reading Difficulty in Visual Memory.

4) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Gates-McKillop Reading Diagnostic Tests in Auditory Discrimination.

**Activity Design for Learning Experiences**

The following activity design was carried out in each of the learning experiences:

1) The pupils were provided a structure wherein they could experience constructive learning together aided by the "learning-counselor." That is to say, that the learning-counselor participated, not in an uninvolved, observer manner, nor as "one of the group," but as a "channeling agent" who constructively helped to focus the attention of the group on the tasks. She also responded in an empathetic, reflective, cognitive manner to the feelings of the group members as they were expressed spontaneously.

2) The pupils were provided tasks which were challenging and which could be achieved, thus providing sources of satisfaction. The tasks could be completed within a short time limit, thus providing a sense of completion and accomplishment. Each experience was structured and programmed so as to provide a
continuity in the learning process and to avoid the anxiety and frustration of unrelated and isolated learning.

3) The pupils were provided repeated opportunities to reorganize in new configurations personally meaningful symbols. Each experience involved previously learned material and allowed for unlimited combinations in personally meaningful ways.

4) The pupils were provided with uniquely designed "learning apparatus" which involved them in a series of multi-sensory experiences. Consistent with the counseling-learning model, these tasks and apparatus simultaneously represented consistency, predictability, reliability in a context of fluidity, flexibility, physical manipulation and control. This learning experience also offered similar dynamic processes, motivations, excitements, disappointments, achievements and personal development that are usually associated with a team sport.

5) The pupils were provided with two individual counseling-learning sessions which were introduced during the middle of the total series. By that time each pupil had learned to manipulate and control the various equipment and apparatus well enough to be free to choose the task he preferred and also to have enough time and personal attention from the counselor to complete the choice successfully.
Summary

Chapter I has presented an introduction and statement of the problem, highlighting especially the difficulties of evaluating this particular population of slow-learners. Reasons for failure learning patterns among this group are set forth and the specific approach proposed to offset these deficiencies is explained. Following a statement of the hypotheses to be tested in the present study, a general activities design concludes the chapter. Chapter II will present related research. Chapter III explains the method and procedure. Chapter IV presents the reasons for selecting the design for this study, the formula used to analyze the data, the results of the analysis, and a discussion of the results. Chapter V presents a summary, conclusions, recommendations, and implications. Appendices are included to more fully explain the apparatus used in this study, the individual sessions, and the instruments used to measure the results.
CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

A review of the literature indicates that very few carefully designed and scientifically controlled studies concerned with general treatment for the "slow-learner" exist. Much attention has been directed towards diagnosing specific causes and treatment for the diagnosis. Considerable effort has gone into classifications of slow-learners, as Younie (1967) has pointed out. Many authorities point out the necessity of knowing whether or not the slow-learner is emotionally disturbed, culturally deprived, sensorily impaired, mentally retarded, or underachieving in order to prescribe effective methods of treatment. Many questions have been raised and discussed regarding the effectiveness of having special classes, special intervention programs within the regular classroom structure, or auxiliary intervention programs. A large quantity of literature is concerned with various procedures for teaching specific content or skill areas such as reading, arithmetic, and language development to slow-learners.
Since the present study is concerned with exploring the possible effects of a specific procedural approach—a counseling-learning approach—to the difficulties the slow-learning is facing as a person in the learning situation, the literature reviewed in this chapter will relate to the three basic concerns of this approach. There are:

1) The relationship between a sense of belonging to a group, relatedness to a learning task, and achievement.
2) The relationship between self-concept and achievement.
3) The relationship between a sense of responsibility, control, and achievement.

The Relationship Between a Sense of Belonging to a Group, Relatedness to a Learning Task, and Achievement

Extensive research has been carried out in an attempt to understand the correlates of academic achievement and under-achievement. The conflicting evidence reported in the literature encouraged O'Shea (1969) to attempt some clarification of the findings. He reviewed over fifty studies which investigated peer relationships and male academic achievement. While the findings still present some confusion there does seem to exist "a possible relationship between age and social behavior and achievement." In five studies which had elementary school populations, a high degree of perceived peer acceptance (Champaign Study, 1961), better school adjustment (Teigland, 1966; Barrett,
1957), more friends (Kurtz and Swenson, 1951), and higher actual peer acceptance (Muma, 1965) seemed to correlate with higher achievement. In other studies, as would be expected, those pupils rated low on social adjustment (Snellgrove, 1961) and social position (Fox, et al., 1964) were also underachievers. A significant conclusion which O'Shea arrived at in his review, which included secondary and college populations also, was that elementary pupils' achievement and underachievement are more directly related to actual and perceived peer group acceptance than that of secondary and college pupils.

This conclusion is significant for the present study because part of the rationale for the procedure employed was based on the assumption that one means of changing self-concept was to provide an opportunity for pupils for succeed in school related tasks in front of and in cooperation with peers.

In a recent study by Hinds and Roehike (1970) which focused on a learning theory approach to group counseling with third, fourth, and fifth grade pupils, their results indicated that not only did appropriate behaviors increase and inappropriate behaviors decrease but that a transfer effect to the classroom was evident. This study was unique in especially two ways. Few studies have been done employing a learning theory model with elementary pupils in groups and few studies have employed both a male and female counselor at the same time which
"controlled and minimized the positive effects of sex differences of counselors." As the authors pointed out in their discussion, this small group approach also provided multiple models (i.e. peer members and counselors) and maximum reinforcement which "greatly increased the likelihood of receiving positive social reinforcement."

Johnson and Kirk (1950), in exploring social acceptance among mentally retarded youngsters, concluded that social acceptance of one another among the group was significantly lower than among normal pupils. Mere physical integration in a regular classroom does not seem to insure acceptance among members of the class. While this study is concerned with a population dissimilar to that of the present study, in the sense that none of the pupils were considered mentally retarded or physically handicapped, they nonetheless were "categorized" and in that sense negatively labeled—as they called themselves—the "dummy class."

It is this fact of intra-group rejection which is significant for the present study. The above cited study indicates a relationship between intra-group acceptance and achievement.

If peer-acceptance is not a natural phenomenon, especially when members of a group are labeled as different (i.e. P.Z.), then it would seem appropriate to intervene with some model of acceptance. In the present study it was proposed that the way in which the learning-counselor reflected various attempts at success in the group allowed others in the group to begin
anticipating successful participation from their members. The very attitude of anticipation would seem to indicate a different perception of peer members (i.e. statements like "Ah, he can't do it." changed to statements like "Come on, you can do it."). This anticipation, it was hoped, would heighten the sense of belonging for each member and would provide a different experience—other peers expecting successes instead of failures.

The destructive and constructive forces which can operate in the peer group have been illuminated by Whyte (1943). Shaftel and Shaftel (1967) discuss the tremendous constructive forces which can operate in a group and indicate the implications of this for education, but also point out "that such (constructive) attitudes (team-work, sensitivity and concern for others) must be systematically cultivated; we cannot depend upon their spontaneous emergence."

In another study by Glick (1968) and employing the conceptual model of Jackson (1959), he attempted to explore the relationship between two independent variables in person-group relationships and academic achievement. Jackson had previously defined these two variables as (1) attraction and (2) acceptance. In his terms "attraction is the resultant force on a person to remain in or locomote in a group," and "acceptance is other group members' recognition of him as a valuable and desirable member. . . ." In other words, attraction is generated from the individual out to the group (i.e. I want to belong to that
group) and acceptance is the groups' need of and respect for the individual (i.e. We want and need you).

Using the Syracuse Scale of Social Relations with an elementary school population, a statistically significant relationship was found to exist between the acceptance dimension and academic achievement for both boys and girls. While there is not enough evidence to formulate a theory of classroom peer group processes and individual academic achievement, it does seem clearly indicated that there is some relationship between a sense of belonging in a group and academic achievement.

Shifting the focus now to the tasks, there is another aspect of belonging, namely, a sense of being related to the learning tasks themselves.

Slow-learners have often been described as having difficulties in making connections, in having to move from the concrete to the abstract, and in not being able to see relationships. The reasons for this disconnectedness and lack of continuity in the developmental process are many and disputable. Several studies have been done in an effort to understand and to find ways to "connect with" the channels of communication through which the brain-injured (Jacobs and Pierce, 1968), the perceptually handicapped (Kephart, 1960), the schizophrenic (Hill, 1969) and the autistic child (Schopler, 1962) can communicate.

One study by Hill and Barnett (1969) seems particularly relevant to the present study because their data indicated that
for one group at least of "sensorily impaired" slower learners—
schizophrenic children—"their ability to use information from
the environment" resembled that of normal children, "but their
mode of taking in information is deficient, since they attend
more to tactual than to visual cues." Once again it should be
emphasized that the population of the present study did not
include sensorily impaired or schizophrenic children. However,
because of the similarity in some of the symptoms of slow
learners however they are diagnosed, the findings of the above
study seem relevant to the present study.

The findings in the Hill-Barnett study would suggest that
the "learning environment" must provide opportunities for
tactual exploration if these youngsters are to be helped to
develop their native ability to process information. Much
recent research in the "readiness" programs (i.e. reading readi-
ness) indicates the necessity of visual, auditory, kinesthetic
and perceptual-motor stimulation.

Literature specifically concerned with learning problems
is focusing more on an intersensory integration (Birch and
Belmont, 1964). McGrath (1965) and Van Mondfrons and Travers
(1964, 1965) in their studies support this trend towards inter-
sensory integration and suggest that more efficient performance
may be achieved when simultaneous multi-sensory methods are
used. These kinds of findings and suggestions are relevant to
the rationale behind the specific learning tasks which were used
in the present study. These tasks were multi-sensory in nature and the sequencing was designed to proceed from familiar and known cues (i.e. colors and letters of the alphabet) to less familiar and new products (i.e. new words).

The Relationship Between Self-Concept and Achievement

The relationship between achievement and under-achievement and self-concept has been investigated at all levels of education (i.e. college, high school, and elementary). One study by Teigland et al. (1966) is concerned with fourth grade pupils from a wide distribution of public school children in North Dakota. The purpose of this study was to determine some concomitants of underachievement. All pupils were administered the WISC Verbal Scale, the California Test of Personality Elementary Form, and Gronlund's Sociometric Test. The results indicated that underachievers have more problems in the area of personality adjustment than do achievers, the authors caution against concluding to a direct causal relationship. However, in their discussion they do suggest that perhaps the poor peer relationships and poor self-image tends to intensify the underachiever's problems and consequently distracts him from adequate academic performance. It is also pointed out in this study that the concomitants of underachievement seem to be consistent at all levels of education. They propose that "the pattern associated
with underachievement is fairly well established by the fourth-grade level."

This suggestion is consistent with Cowen's (1966) findings in his exploration of pupils with emotional disorders at the elementary level. He states "that disturbed children seemed to be on a global downhill course by third grade." This statement lends support to some of the reasoning behind selecting third grade pupils who were having learning problems for the present study.

Combs (1964) in a study concerned with academic underachievement in the academically capable found evidence that underachievers "showed a significant and consistent difference from acheivers in that they: saw themselves as less adequate; saw themselves as less acceptable to others; saw their peers as less acceptable; saw adults as less acceptable; showed an inefficient and less effective approach to problems; and showed less freedom and adequacy of emotional expression."

An extension of the role of self-concept in academic behavior was reported by Williams and Cole (1968). In this study it was hypothesized that "a child's conception of school ... might be construed as an extension of his self-concept." Therefore, using the Tennessee Self Concept Scale and a method of selecting adjectives to describe "his school experience as he presently perceived it and as he would like it to be . . ."
statistically significant correlations were obtained between self-concept and social esteem indices, self-concept and emotional adjustment, self-concept and reading achievement, and self-concept and mathematical achievement.

Lafferty (1968) points out a misunderstanding "in much of our thinking about human behavior and behavior change . . . (that is) the idea that the stimulus equals the response." In a questionnaire administered to three hundred fifth grade pupils, he was able to show "that it is not the stimulus that causes the problem; it is, rather, what the individual thinks about the stimulus that causes the problem." For example, he received a forty-five per cent true response to the true-false statement which was part of the questionnaire: "Kids who get A's and B's are better human beings than kids who get D's and E's." In comparing academic achievement, he found those pupils answering "true" to the statement "were almost one full academic year behind" the pupils answering "false." Thus, it seems that one's self-concept is related to what one perceives to be the value standards of others or of outside values rather than some internal sense of worth. Those who had a sense of worth, in spite of whatever "letter grade was given, also were achieving adequately.
The Relationship Between a Sense of Control, Responsibility and Achievement

Crandall, Katkovsky, and Preston (1962) contributed a much needed study in the area of achievement motivation with first, second, and third grade pupils. Up to that time studies had been directed to the relationship between "fantasy need achievement" (McClelland, 1953) and anxiety (Sarason, 1960) and achievement. In Crandall's study these two predictor variables as well as four additional ones, possibly more suited to this age group, were used. Of the three major findings in this study, one is particularly relevant to the present study, namely, that "the child's belief that he, rather than other persons, usually caused the successes and failures he experienced in intellectual achievement situations." The more responsible the student felt, the more significant was the relationship between this responsible feeling for his own successes and actual academic achievement. There was also a significant relationship between feeling responsible for intellectual achievement and the amount of free time that was spent in intellectual activities as contrasted with physical skills activities, artistic-creative, and manual mechanical activities. While it should almost go without saying that this relationship between a sense of responsibility and academic achievement would need further investigation before conclusive statements could be made, it
nevertheless lends support to the theoretical structure underlying the present study.

In a study by Morse, Cutler, and Fink (1964) among many other findings they indicated that "behavior control was the major problem reported by teachers, and motivation for school work a distant second." It was also noted that very few withdrawn pupils were identified as needing adjustment. Therefore, it would seem that a primary concern for teachers is aggressive behavior. In a recent study (NIMH, 1970) "evidence indicates that ten to twelve percent of school-age children have moderate to severe emotional problems that require special care." This figure is quoted in an article concerned with anger in the classroom. The report continues: "Studies by pediatricians report that incidents of high blood pressure and peptic ulcers, virtually unknown before in young children, have begun to appear with greater frequency."

Aggression has been widely studied and discussed in the literature. A main focus has been on parental and environmental influences on aggression (McCord, McCord, and Howard, 1963). More recent research has broadened its focus to include such influences as frustration (Berkowitz, 1965), social reinforcement and imitation (Bandura and Walters, 1963), peer models (Hicks, 1965), and movies and television (Maccoby, 1964).

Feshbach (1964) in attempting a further definition of aggression arrived at the differentiation of "accidental" and
"intentional" aggression and various subdivisions of these. The important clarification for the present study is the distinction between "expressive" and "hostile" aggression. The implication in "accidental and expressive" aggression which applies directly to the present study is that this "expressive aggression" is the manner by which the pupil enters a learning situation. In other words, this aggression is "expressive" of his commitment to the experience. It may appear to others to be "hostile" (i.e. directly intended to destroy the experience or the persons in the experience) but in fact hostility or destruction is not the intent of the "expressive" aggressor.

This distinction is obviously extremely difficult to determine in a person's actions. However, this distinction is important in forming the attitude held by a teacher-counselor—such as in the present study—in attempting to provide a genuine opportunity for responsible and sometimes powerfully uncontrolled commitment to a learning task.

Roth and Puri (1967) among others who have been studying the "non-achievement syndrome" have investigated the relationship between the direction of aggression and achievement or non-achievement. They found that achievers are more extrapunitive in contrast to the more intropunitive behavior of the underachiever. Aggression, in the sense of constructive "reaching out" for the knowledge or skill that is offered in the classroom, would seem necessary then if the pupil is to learn.
As is readily evident in even a limited familiarity with the characteristics of the "behavior problem" student, aggressive behavior is not only difficult to interpret but it is also difficult to tolerate in a classroom. Withdrawn behavior patterns are much easier to tolerate and even tend to go unnoticed frequently.

As mentioned in Chapter I, neither pattern of behavior channels constructively the energy which a genuine commitment can generate. Once again these findings lend support to the rationale behind the specific tasks employed and the counseling skills required in the present study. The tasks were designed to focus and channel the aggression necessary for learning. A certain amount of aggressive participation and self-investment was necessary in order to accomplish the tasks but the tasks provided the limits which would lead to optimal functioning. In this way, the learning-counselor was freed from the disciplinarian role and allowed to function in a more personal way in the learning tasks.

In an often cited study by Brookover and Thomas (1964) using seventh grade pupils in an urban school system, one of their major findings is relevant to the present study. Their data as measured by a Self-Concept of Ability Scale, the California Test of Mental Maturity and Grade Point Averages, revealed a significant and positive correlation between self-concept of ability and performance. In other words, how well a pupil will
be able to perform will be determined in large measure by his feelings of capability of performing. The implications for the present study are that these "feelings of capability of performing" can best be integrated and felt if they are confirmed in the actual experience of doing or performing (i.e. confirmation or convalidation not only came from the counselor and peer members in the learning experience but also from the pupil himself through a recognition that he did the task--he was responsible for his own thing).

Strickland (1970) studying an inner-city lower socio-economic population of elementary pupils, found evidence supporting the conclusion that those pupils who tended to perceive themselves as determiners of their own fate were also more successful academically. These pupils functioned from "a sense of internal control" in contrast to underachievers or less successful pupils who functioned from "external control." This finding would be consistent with an earlier study by Battle and Rotter (1963), who concluded that sixth, and eighth grade Negro students felt more externally controlled than did white pupils and achieved less successfully.

**Summary**

The review of the literature in this chapter has been divided into the three basic concerns of this counseling-learning approach to the problem of slow-learning, inner-city underachievers. The first area of concern presented was the
relationship between a sense of belonging to a group, relatedness to the learning task and achievement. A review of the literature dealing with populations at all levels of education seemed to indicate a tendency towards a stronger relationship between acceptance and academic achievement at the elementary level. Some evidence tends to support the effectiveness of small group counseling procedures in order to facilitate behavior changes and intergroup relationships. There is also evidence that positive and constructive intragroup relationships do not occur spontaneously but can be furthered through various counseling skills. Various studies concerned with handicapped children have revealed that these pupils may not need to remain unrelated to the world of learning if new and different methods of presenting information to them are used.

The second area of concern was the relationship between self-concept and achievement. The literature revealed evidence that there is some relationship between poor peer relationships and poor self-image and underachievement. It has also been suggested that the third or fourth grade is a critical period for preventing a more or less fixed relationship between poor self-concept and underachievement. Further studies revealed that the way in which students perceive themselves (i.e. less adequate less acceptable by peers) is reflected in underachievement. This same finding became evident in studying the relationship between the way the pupil perceived of his school
experience and his own self-concept. Not only is there a relationship between one's perceptions of the self as reflected by others but also there seemed to be evidence that the way one thinks about value judgments of others may also be related to one's self-concept and achievement.

The third area of concern was the relationship between a sense of responsibility, control and achievement. The literature tended to support the notion that there exists a relationship between a pupil's belief that he is responsible for his own successes and his actual achievement. Studies also suggest that there is a relationship between the direction of aggression and achievement. Further research indicated that if a pupil feels capable of performing, his actual performance and achievement will reflect this feeling of capability. Consistent with the previous evidence were two further studies which dealt with a sense of internal control as contrasted with external control. This was particularly evident for sixth and eighth grade Negro boys as was found in one study.
CHAPTER III

METHOD

Subjects

Forty-eight "Primary Z" pupils (i.e. pupils not able to complete satisfactorily third grade work and who are given one or two additional years before promotions to the fourth grade or Primary 4) were selected from one school in one district of the Chicago Public Schools. Havighurst (1964) states that this district ranks lowest among the twenty-one in socio-economic status, I.Q. scores, and school achievement. Two-thirds of its first graders are in the "difficult" group which means that "most of them will fail to pass the first grade, unless they are promoted automatically and taught to read in the second grade." The Department of Operations Analysis (1970) reports the more recent statistics for the particular school involved in this study. Their report indicates that the median family income is $3,997.00, median I.Q. is 92 as measured by the Kuhlman Anderson, and the median number of years of school completed is 8.4.

Two samples of twenty-four pupils were drawn from each of two "Primary Z" rooms and randomly assigned (using a random
Table, Tate, 1965) within each room to one of two treatment groups (i.e. counseled and non-counseled). These pupils were all classified as slow-learners. There were no "mentally retarded" nor physically handicapped pupils in the two samples of twenty-four. The rooms from which the two samples were drawn were taught by two teachers. In order to balance the groups (i.e. counseled and non-counseled), pupils from each teacher were equally represented in both.

Since additional information was available because of the city-wide testing program, it was possible to obtain I.Q. scores (Kuhlman Anderson, Form A), ages, and reading level for all pupils participating in the study. In order to further determine the similarity of the groups at the outset of the experiment, a simple analysis of variance was applied to the groups' age (F = .488, df = 3.44, N.S.), reading level (F = 1.543, df = 3.44, N.S.), and I.Q. scores (F = .371, df = 3.44, N.S.). As is shown there were no significant differences among the groups on these measures which in turn further supported the randomization procedure used in assigning pupils to the treatment conditions.

The four groups were designated: Group 1 = teacher X counseled; Group 2 = teacher X non-counseled; Group 3 = teacher Y counseled; Group 4 = teacher Y non-counseled. Each group consisted of eight boys and four girls ranging in age from nine to twelve. Table 1 indicates sex, age, I.Q. and reading level.
**TABLE 1**

**SEX, AGE, I.Q. (KUHLMAN ANDERSON-FORM A) AND READING LEVEL (AS DETERMINED BY TEACHER GRADES) FOR PUPILS IN EACH OF THE FOUR GROUPS**

<table>
<thead>
<tr>
<th>Pupil</th>
<th>Sex</th>
<th>Age</th>
<th>I.Q.</th>
<th>Reading Level</th>
<th>Pupil</th>
<th>Sex</th>
<th>Age</th>
<th>I.Q.</th>
<th>Reading Level</th>
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<tbody>
<tr>
<td>1</td>
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<td>9</td>
<td>105</td>
<td>G = 7</td>
<td>1</td>
<td>F</td>
<td>9</td>
<td>101</td>
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<td>F</td>
<td>11</td>
<td>80</td>
<td>F = 6</td>
<td>2</td>
<td>F</td>
<td>10</td>
<td>93</td>
<td>F = 6</td>
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<td>3</td>
<td>M</td>
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<td>99</td>
<td>H = 8</td>
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<td>11</td>
<td>99</td>
<td>H = 8</td>
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<tr>
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<td>M</td>
<td>10</td>
<td>101</td>
<td>G = 7</td>
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<td>M</td>
<td>11</td>
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<td>5</td>
<td>M</td>
<td>11</td>
<td>110</td>
<td>H = 8</td>
<td>5</td>
<td>M</td>
<td>10</td>
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<td>12</td>
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<td>10</td>
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<td>10</td>
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<td>E = 4</td>
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<td>Sex</td>
<td>Age</td>
<td>I.Q.</td>
<td>Reading Level</td>
<td>Pupil</td>
<td>Sex</td>
<td>Age</td>
<td>I.Q.</td>
<td>Reading Level</td>
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<td>95</td>
<td>E = 5</td>
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<td>F = 6</td>
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<td>M</td>
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<td>90</td>
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<td>G = 7</td>
<td>12</td>
<td>M</td>
<td>11</td>
<td>87</td>
<td>H = 8</td>
</tr>
</tbody>
</table>
A simple analysis of variance was applied to the groups' age, I.Q., and reading level to determine the variance among the groups. The formula used was as follows (Spence, et al., 1968):

\[ SS_t \text{ (Sum of squares total)} = \frac{\sum x^2}{N} - \frac{(\sum x)^2}{N} \]

The sum of the squares total is partitioned into \( SS_{\text{between}} \) and \( SS_{\text{within}} \).

\[ SS_{\text{between groups}} = \frac{(\sum x_1)^2}{n} + \frac{(\sum x_2)^2}{n} + \frac{(\sum x_3)^2}{n} + \frac{(\sum x_4)^2}{n} - \frac{(\sum x)^2}{N} \]

The four treatment conditions are treated as four levels of one independent variable

\[ SS_{\text{within groups}} = \frac{\sum x_1^2}{n_1} - \frac{(\sum x_1)^2}{n_1} + \frac{\sum x_2^2}{n_2} - \frac{(\sum x_2)^2}{n_2} + \frac{\sum x_3^2}{n_3} - \frac{(\sum x_3)^2}{n_3} + \frac{\sum x_4^2}{n_4} - \frac{(\sum x_4)^2}{n_4} = \frac{\sum x^2 - (\sum x)^2}{n} - \frac{(\sum x)^2}{N} \]

\[ SS_b \quad SS \text{ between} \quad \frac{df}{(k-1)} \quad = MS_{\text{between}} \]
\[
\frac{SS_w \text{ SS within}}{df} = (N-1)-(k-1) = MS_{\text{within}}
\]

\[
F = \frac{MS_{\text{between}}}{MS_{\text{within}}}
\]

Table 2, presented below, indicates the means and standard deviations for age, I.Q., and reading level for the four groups.

**TABLE 2**

MEANS AND STANDARD DEVIATIONS FOR AGE, I.Q. (KUHLMAN ANDERSON-FORM A), AND READING LEVEL (AS DETERMINED BY TEACHER GRADES AND CONVERTED TO A NUMERICAL VALUE) FOR THE FOUR GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>I.Q.</th>
<th>Reading Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1:</td>
<td>M</td>
<td>10.7</td>
<td>94.75</td>
</tr>
<tr>
<td>Teacher X</td>
<td>SD</td>
<td>1.04</td>
<td>10.05</td>
</tr>
<tr>
<td>Group 2:</td>
<td>M</td>
<td>10.5</td>
<td>95.17</td>
</tr>
<tr>
<td>Teacher X</td>
<td>SD</td>
<td>.80</td>
<td>5.32</td>
</tr>
<tr>
<td>Group 3:</td>
<td>M</td>
<td>10.7</td>
<td>96.16</td>
</tr>
<tr>
<td>Teacher Y</td>
<td>SD</td>
<td>.67</td>
<td>8.29</td>
</tr>
<tr>
<td>Group 4:</td>
<td>M</td>
<td>10.6</td>
<td>94.09</td>
</tr>
<tr>
<td>Teacher Y</td>
<td>SD</td>
<td>.94</td>
<td>7.07</td>
</tr>
</tbody>
</table>

**F-test** = 0.488 N.S. 1.543 N.S. .371 N.S.
Teachers

Both teacher X and teacher Y were cooperative and supportive of the program. Due to research findings (Rosenthal, 1966, 1967) suggesting that the personality and expectations of the individual teachers influence pupil performance, each teacher was treated as an independent variable, in the sense that each one's personality and classroom procedure were regarded as factors influencing their pupils' performance. Therefore, there follows a description of general classroom procedures and personalities of the two teachers from whose classrooms the pupils participating in this study were drawn.

Teacher X was male, white, thirty three; teacher Y was female, black, and thirty-seven. Teacher X had one year more experience than teacher Y in teaching "Primary Z" pupils. Teacher X spent approximately two hours a day in the classroom using reading machines and other novel situations to motivate his pupils. He also overtly and enthusiastically encouraged them somewhat in the manner of a cheerleader encouraging the team. Teacher Y did not consistently use teaching machines and spent more time in a quiet, orderly routine allowing approximately the same amount of time for individual attention and instruction.
Experimenter

The experimenter who was called a "resource teacher" was functioning in the school in an established E.S.E.A. (Elementary and Secondary Education Act) learning rehabilitation program. Campbell and Stanley (1963) in discussing external validity factors and specifically the "reactive arrangements effect" indicate that these effects can be minimized if the experiment is conducted as part of the usual school pattern and if conducted by regular staff of the school concerned. The "resource teacher" was female, white, and thirty-three. She was already known to the pupils in the school and the experimental and control groups were unaware of the "experiment" since it was worked into the expected school program.

Instruments

All pupils were administered the Raven's Coloured Progressive Matrices (Revised Order, 1956) Sets A and Ab; the Metropolitan Achievement Tests--Word Knowledge, Word Discrimination, and Spelling; the Durrell Analysis of Reading Difficulty--Visual Memory; and the Gates-McKillop Reading Diagnostic Tests--Auditory Discrimination. As was mentioned in Chapter I, these four instruments were chosen for the present study because they represent three basic areas of evaluation in learning, namely, general learning ability, subject matter and educational proficiencies, and learning readiness skills.
The Raven's Coloured Progressive Matrices "can be described as a test of observation and clear thinking." Its purely non-verbal score serves "one special function in the school setting. It calls attention to pupils who have good reasoning ability but who are below standard in reading and verbal development." The Metropolitan Achievement Tests "comprise a coordinated series of measures of achievement in the important skill and content areas of the elementary and junior high school curriculum." The Durrell Analysis of Reading Difficulty--Visual Memory test involves "the use of a tachistoscopic device which shows one of twenty words at a time. The child is given two or three seconds to see the word and then circle the same word on his answer sheet out of a choice of five similar words." The Gates-McKillop Reading Diagnostic Tests--Auditory Discrimination test is one most "useful for children with a foreign language background. In addition, many children from lower socio-economic areas do not have home experiences and training in making the particular sound discriminations upon which most school instruction is based. In this test pairs of words are said once and the child is to indicate whether they are similar or dissimilar."

The above descriptions have been taken from the manuals accompanying each of the tests and for a further description of these instruments see Appendix C.
**Procedure**

The following section describing what was done with the counseled groups is divided into four parts. Part 1 describes the physical arrangement of the room, Part 2 discusses the time limits of the experiment, Part 3 describes in detail the initial group session and subsequent group sessions, and Part 4 briefly delineates the design of the individual sessions.

**Part 1: "I" and "O" Formations**

There were two formations set up in different parts of the room. The students were arranged in one or the other but not at the same time. The "I" formation centered in the Chromacord Learning Lanterns (see Appendix A for a description) and "O" formation centered on a standard tape recorder.

**Diagram 1**

<table>
<thead>
<tr>
<th>Formation &quot;I&quot;</th>
<th>Formation &quot;O&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromacord</td>
<td>Tape Recorder</td>
</tr>
<tr>
<td>+++++</td>
<td>X X X</td>
</tr>
<tr>
<td>++++ X X X</td>
<td>X X</td>
</tr>
<tr>
<td>Pupils X X X</td>
<td>Pupils X X</td>
</tr>
<tr>
<td>X X X X</td>
<td>X X</td>
</tr>
<tr>
<td>RT Resource Teacher</td>
<td>RT Teacher</td>
</tr>
</tbody>
</table>

\[\text{Diagram 1}\]
As seen in Diagram I, the "I" arrangement consisted of six desks in pairs facing each other with the Chromacord Learning Lanterns at one end resting on two desks and the resource teacher at a desk at the opposite end. The "O" arrangement consisted of seven chairs put in a circle around a desk with a tape recorder on it.

Part 2: Time Limits of the Experiment

The ten sessions, eight group and two individual, extended over a period of six weeks. The group sessions were one-half hour in length and the individual sessions fifteen minutes. The group sessions met twice a week in the mornings. The counseled groups of twelve from each room were further divided into two groups of six (following the earlier cited randomization procedure) because it was felt that the counselor could establish a more personal relationship with each student if the groups were kept small in number. As a matter of convenience all six pupils were from the same room. Each group of six pupils then met consistently at the same time over the six-week period. The two individual sessions were the fifth and sixth in the series of ten. Each half-hour session was divided into two fifteen minute sessions (i.e. fifteen minutes in Formation "I" and fifteen minutes in Formation "O").
Part 3: Initial Group Session and Subsequent Group Sessions

The significance of the initial interview in the counseling relationship has been discussed in the literature (Buchheimer and Balogh, 1961). Therefore, a detailed description of what was communicated to the pupils in the first session is reported here.

The resource teacher (i.e. experimenter) personally met each group of six pupils in their regular classroom and accompanied them to the "special room" which had the exciting number "007." While this number was a chance happening, it did contribute towards setting a positive tone because all pupils seemed to be familiar with "Special Agent 007." This was a particularly fortunate happening because during the previous year this room was the EMH (educably mentally handicapped) classroom and some negative tones were associated with the room.

The goals for the first session were: 1) to know the names of each pupil by the end of that session; 2) to briefly explain why we were meeting together; and 3) to demonstrate and introduce the students to the equipment that would be used and the format that would be followed in the sessions.

When the group was seated in the "O" formation, the resource teacher explained that each group would meet eight times together and that each pupil would have the opportunity to meet with the resource teacher two times by himself or herself. It was explained that: "We are going to be getting to know one
another in this small group and learn how to do some new things together. You will have to listen very carefully because each time we will add something new to what we have already learned and we will be helping one another so that each one can learn how to do all the things we have planned." Each pupil then introduced himself or herself to the group and then the resource teacher repeated all six names until secure in matching faces with names.

The group then moved to the "I" formation where the monitor lantern (see Appendix A) was demonstrated by the resource teacher who turned on and off, in order, each of the eight lights (i.e. yellow, blue, red, green, white, orange, purple, and pink) used in the system. Each pupil had his own switch to control his own set of eight lights which were identical to those on the monitor unit. Once the position and colors were demonstrated the pupils were given a few minutes of "exploration" and "free play" with their own lights.

After a few minutes, a small doorbell chime, which had been mounted in a wooden block so that it could be passed around more easily, was rung which momentarily distracted them from their "play." It was explained that the sound of the chime indicated "all lights off" and that each one would have turns at ringing the doorbell for the group. The doorbell chime was then given to the first pupil. He was instructed to call a color and ring the chime only when everyone had the correct color turned on.
Once all lights were on correctly, the monitor (operated by the resource teacher) confirmed their choices, the chime was rung, and it was the next pupil's turn. The students caught on quickly and after two or three rounds of colors, the group moved back to the "O" formation.

The students were seated in the discussion circle and the teacher demonstrated the use of the tape recorder. Each one then took a turn at turning it on and off. After all were secure in being able to stop and start it, the first pupils in the circle began by recording his name, age, and room number. He then stopped it and passed the microphone to the next pupil who continued in the same manner. After all participants, including the resource teacher had recorded something, the first pupil in the group rewound the tape and played it back for all to listen to. They not only heard their own voices, but they also heard the reflection of the teacher-counselor of what each had said to the group. Immediate identification with their own voices was evident by the uncontrolled big smiles for some, embarrassed lowering of the head for others and startled reactions like "Is that me?" for a few. This playback concluded the first session and the resource teacher then accompanied the pupils back to their regular classroom.

Subsequent Sessions

In all the subsequent sessions the resource teacher referred briefly to the past session in order to maintain a sense
of continuity and then introduced the new task. The new task in formation "I" was introduced in one of two sentences and a conscious effort was made not to repeat the instructions and to move quickly into carrying out the new task. The pupils proceeded on the new task while the teacher-counselor continued to control the monitor. The purpose of the monitor was to provide immediate feedback after enough time was allowed for all to make a color selection. This procedure for each new task continued for approximately fifteen minutes. The remainder of the period was spent in the "O" formation.

In the discussion circle the pupils talked into the tape recorder. In order to establish a relaxed attitude towards the tape recorder and to allow for maximum self-initiated participation, they were given a basic structure but were permitted to talk about whatever they wished. They generally relied on their most familiar structure by saying their name and room number, but then proceeded to communicate some more personal comment. After all six pupils had recorded, the teacher-counselor took her turn and attempted to give back a summary "reflective" type statement (i.e. "If I can remember what each of you said: Johnny, you said you did not like arithmetic because it is so hard . . . and Susan, you went on a trip last weekend where you had a real good time . . ." and other similar statements. This summary reflective statement attempted to convey to each student, in content and emotional tone, that the teacher-counselor had
understood what each one wanted to communicate. The students took turns rewinding and playing back the tape recorded session and each session concluded with this playback.

Part 4: Individual Sessions

A detailed description of four individual sessions selected at random can be found in Appendix B. The four selected would be representative of the general content of most of the individual sessions. The intent and design of the individual sessions were to provide each student with a limited number of options (i.e. the learning lanterns, the tape recorder, or a dictated story which the teacher-counselor would type as it was being dictated) and the time and individual attention necessary to carry out successfully the choices made.
CHAPTER IV

RESULTS AND DISCUSSION

The reason for selecting the 2 x 2 factorial design for analyzing the data in this particular study is presented in this chapter. This is followed by an explication of the randomization used in selecting and assigning pupils to the four groups and by a discussion of the significance of the difference between groups at the end of the experiment. Table 3 presents the means and standard deviations of all tests administered for each group of subjects. This is followed by the formula and steps used to analyze the data. Table 4 then presents the results of this 2 x 2 analysis of variance which was applied to each of the six measures obtained from this study. A discussion of the null-hypotheses follows.

The 2 x 2 factorial design for this study was selected on the basis of recent research design literature. The following comment points out the need for this type of research design especially in an educational setting (VanDalen, 1966):

Knowledge that is of vital importance to educators will elude them if they must limit research to the study of a single variable at a time. Education as a process involves a number of variables interacting simultaneously; hence, workers in the field need experiments that will allow them to look at the process more nearly as it occurs naturally.
Until relatively recently "the law of the single variable" tended to keep educators from investigating the interaction effects of variables. R. A. Fisher overcame this obstacle when he developed factorial designs and the statistical techniques for their analysis.

Spence (1968) continues to discuss the advantages of the factorial design:

Application of the analysis of variance technique to the data from a double-classification (2 x 2) factorial design allows us to make three kinds of statements about our results: (1) the effects on our response measure of the different conditions of Variable A, independent of variations in B conditions, (2) the effects of the different conditions of Variable B, independent of variations in A conditions, and (3) the joint effects or interaction of Variables A and B.

One of the main advantages of the factorial experiment is that it allows us to study the joint effects of the two variables, how the variables combine or interact to influence our response measure.

In summary then, a double-classification analysis of variance yields F-ratios which allow us to test the null hypothesis concerning differences between the means of the A groups and between the means of the B groups—the main effects of each of the two variables—and a hypothesis concerning the interaction between the two variables—that they combine in an additive manner.

The four groups in the present study were considered comparable at the outset of the experiment on the basis of randomized selection and assignment of pupils to the different conditions of the experiment (i.e. counseled vs. non-counseled). As was stated in Chapter III, additional information (i.e. Kuhlman Anderson scores, ages, and reading level) was available. This information was used in order to further support the randomization; the randomization procedure was supported by the fact that upon computing a simple analysis of variance of the
three measures stated above, no significant difference was indicated among the groups at the outset of the experiment.

Therefore, on the basis of randomization, it is expected, as indicated by the null hypotheses, that at the end of the experiment the groups will still give evidence of this randomization. That is to say that the variance or difference between groups will be so small as to still warrant considering the groups comparable and not significantly different. Stated another way, if counseling during the six-week period has no effect on the various measurements used in this study, the differences obtained between groups will be so small that the groups will be considered uneffected or unchanged and will therefore remain as similar as they were before counseling.

If, on the other hand, counseling does effect the various measures that are used, the differences obtained between groups will be large enough to no longer consider the groups random. If the groups are no longer considered random at the end of the experiment, then one can conclude that something has caused this change. The most obvious conclusion would be that the counseling which was operating consistently over a six-week period was the main factor of difference between the two groups. This does not absolutely rule out the possibility that factors not controlled (i.e. what went on in the classroom, student fatigue, community influence and other such factors) may have been operating as an influence on the measures also. However, where there is a
difference between groups, the conclusion will be made that the probability is no more than five in one hundred that such a large difference between groups would occur by chance and that it has occurred because of the main factor (i.e. counseling vs. non-counseling).

The steps and formula used in this design are described below. The data was treated as a collection of four groups (i.e. Group 1 = teacher X counseled, Group 2 = teacher X non-counseled, Group 3 = teacher Y counseled, Group 4 = teacher Y non-counseled) and the total sum of squares, the sum of the squares between groups, and the sum of the squares within groups was found by the following formula (Spence, 1968):

\[ SS_t = \frac{\sum x^2}{N} - \frac{(\sum x)^2}{N} \]

\[ SS_b = \frac{\sum x_1^2}{n} + \frac{\sum x_2^2}{n} + \frac{\sum x_3^2}{n} + \frac{\sum x_4^2}{n} - \frac{(\sum x)^2}{N} \]

or

\[ SS_b = \frac{\sum x^2}{1-k} \left[ \frac{\sum x}{N} \right]^2 - \frac{(\sum x)^2}{N} \]

\[ SS_w = \frac{\sum x_1^2}{n} - \frac{(\sum x_1)^2}{n} + \frac{\sum x_2^2}{n} - \frac{(\sum x_2)^2}{n} + \frac{\sum x_3^2}{n} - \frac{(\sum x_3)^2}{n} + \frac{\sum x_4^2}{n} - \frac{(\sum x_4)^2}{n} \]

or

\[ SS_w = \frac{\sum x^2}{1-k} \left[ \frac{\sum x}{n} \right]^2 - \left( \frac{\sum x}{n} \right)^2 \]
The sum of the squares within groups is based on the variability within each of the four groups. The $SS_w$ is used to obtain a measure of within groups variability against which to assess the main effects of both Variable A (i.e. counseled versus non-counseled) and Variable B (i.e. teacher X versus teacher Y). This same measure is also used in determining the F for the interaction of the variables.

The sum of the squares between groups is partitioned into the three sources of variability cited earlier, namely, the sum of the squares between groups for effect A (i.e. counseled versus non-counseled), and the sum of the squares between groups for effect B (i.e. teacher X versus teacher Y), and the sum of the squares between groups for the interaction effect between effect A and effect B. The formula for computing these three sources of variability are given below:

$$SS_A = \frac{(\overline{\sum X_{A1}})^2}{n_{A1}} + \frac{(\overline{\sum X_{A2}})^2}{n_{A2}} - \frac{(\overline{\sum X})^2}{N}$$

$A_1 = \text{Group 1 = teacher X counseled}$

$A_2 = \text{Group 2 = teacher X non-counseled}$

$$SS_B = \frac{(\overline{\sum X_{B1}})^2}{n_{B1}} + \frac{(\overline{\sum X_{B2}})^2}{n_{B2}} - \frac{(\overline{\sum X})^2}{N}$$

$B_1 = \text{Group 3 = teacher Y counseled}$

$B_2 = \text{Group 4 = teacher Y non-counseled}$
\[ B_1 = \text{Group 1} = \text{teacher X counseled} + \]
\[ \text{Group 2} = \text{teacher X non-counseled} \]
\[ B_2 = \text{Group 3} = \text{teacher Y counseled} + \]
\[ \text{Group 4} = \text{teacher Y non-counseled} \]
\[ SS_A \times B = SS_b - SS_A - SS_B \]

Once these three components have been computed, the mean square (MS) for each of these sources of variability can be found by dividing each SS by its degree of freedom (i.e. the number of components that are free to vary within the sample). The degree of freedom for Variable A is equal to the number of A groups minus one. The degrees of freedom for Variable B is equal to the number of B groups minus one. The degrees of freedom for Variable A times Variable B is equal to the number of A groups minus one times the number of B groups minus one and the degrees of freedom for within groups is equal to the total number of cases minus the total number of groups.

The F-ratio is computed by dividing the MS's for A, B, and for the A x B interaction by MS within groups:

<table>
<thead>
<tr>
<th>Sources of variability</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = counseled versus non-counseled</td>
<td>( SS_A )</td>
<td>1</td>
<td>( SS_A )</td>
<td>( MS_A )</td>
</tr>
<tr>
<td>B = teacher X versus teacher Y</td>
<td>( SS_B )</td>
<td>1</td>
<td>( SS_B )</td>
<td>( MS_B )</td>
</tr>
<tr>
<td>A x B = interaction</td>
<td>( SS_{AxB} )</td>
<td>1</td>
<td>( SS_{AxB} )</td>
<td>( MS_{AxB} )</td>
</tr>
</tbody>
</table>
within group variance or error \[ SS_w \]

Total \[ SS_t \]

In order to evaluate each F-ratio a table is used (Spence, 1968) and for this study with 1 and 44 degrees of freedom (the degrees of freedom associated with the F for both Variables A and B), a value of 4.08 is required at the five percent level and of 7.08 at the one percent level. Before presenting the results of the 2 x 2 analysis of variance for each of the six measures in this study, the means and standard deviations for all four groups as measured on the Raven's, Visual Memory, Auditory Discrimination, Word Knowledge, Word Discrimination, and Spelling scores will be presented in Table 3.

**TABLE 3**

MEANS AND STANDARD DEVIATIONS FOR ALL FOUR GROUPS AS MEASURED ON THE RAVEN'S, VISUAL MEMORY, AUDITORY DISCRIMINATION, WORD KNOWLEDGE, WORD DISCRIMINATION, AND SPELLING SCORES

<table>
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<tr>
<th></th>
<th>R</th>
<th>VM</th>
<th>AD</th>
<th>WK</th>
<th>WD</th>
<th>Sp</th>
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<tbody>
<tr>
<td>Group 1:</td>
<td>teacher X</td>
<td>M</td>
<td>24.08</td>
<td>16.25</td>
<td>11.50</td>
<td>45.08</td>
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<td>Group 2:</td>
<td>teacher X</td>
<td>M</td>
<td>21.67</td>
<td>16.17</td>
<td>11.00</td>
<td>40.58</td>
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<tr>
<td>Group 3:</td>
<td>teacher Y</td>
<td>M</td>
<td>22.67</td>
<td>14.67</td>
<td>10.67</td>
<td>37.00</td>
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<tr>
<td>Group 4:</td>
<td>teacher Y</td>
<td>M</td>
<td>18.00</td>
<td>14.33</td>
<td>11.25</td>
<td>34.25</td>
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As will be seen in Table 4, an F-ratio of 5.51 was obtained for the counseled groups on the Raven's Progressive Matrices. It was concluded that the counseled groups differed significantly at the five percent level and that null-hypothesis Number one was rejected. The remaining three null-hypotheses were accepted. As will also be seen, there was a significant teacher effect between teacher X and teacher Y as measured by the Durrell Analysis of Reading Difficulty--Visual Memory, the Metropolitan Achievement Tests--Word Knowledge, Word Discrimination and Spelling. All F-ratios obtained in the study are presented in Table 4.

As is evident none of the F-ratios for the interaction between groups (A x B) reached significance; therefore, one can conclude that it does not matter what "type" of regular classroom teacher--within the two types described in the present study--the pupils have. The effects of counseling will be the same for both groups; the counseling does not combine with either type of teacher in the present study to produce more effective or less effective results. In that sense the two variables are independent.

If on the other hand, the F-ratios were significant, then one would have to conclude that the variables combined non-additively which would mean that the two variables are not independent of one another. The effects of counseling would be dependent upon the type of teacher the pupils had.
<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Raven's Visual Memory</th>
<th>Raven's Visual Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>df</td>
</tr>
<tr>
<td>Counselled versus Non-Counselled (A)</td>
<td>150</td>
<td>1</td>
</tr>
<tr>
<td>Teacher X versus Teacher Y (B)</td>
<td>77</td>
<td>1</td>
</tr>
<tr>
<td>Counselled x Teachers (A x B)</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Within groups</td>
<td>1199</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>1441</td>
<td>47</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Auditory Discrimination</th>
<th>Word Knowledge</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>df</td>
</tr>
<tr>
<td>Counselled versus Non-Counselled (A)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Teacher X versus Teacher Y (B)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Counselled x Teachers (A x B)</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Within groups</td>
<td>346</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>356</td>
<td>47</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Word Discrimination</th>
<th>Spelling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>df</td>
</tr>
<tr>
<td>Counselled versus Non-Counselled (A)</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Teacher X versus Teacher Y (B)</td>
<td>462</td>
<td>1</td>
</tr>
<tr>
<td>Counselled x Teachers (A x B)</td>
<td>25</td>
<td>1</td>
</tr>
<tr>
<td>Within groups</td>
<td>2398</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>2902</td>
<td>47</td>
</tr>
</tbody>
</table>

<sup>a</sup><sub>p .05</sub>.  
<sup>b</sup><sub>p .01</sub>.
In light of the evidence of no significant interactions between counseled groups and teacher groups the following conclusions can be drawn:

1) Counseled groups differed significantly from non-counseled groups as measured by the Raven, whether the pupils came from teacher X or teacher Y.

2) Counseled groups did not differ significantly from non-counseled groups as measured on the other three instruments.

3) Pupils from teacher X differed significantly from pupils from teacher Y irrespective of whether they received counseling as measured on Visual Memory, Word Knowledge, Word Discrimination, and Spelling.

At first glance of the evidence presented in this study it appears that teacher X is significantly more effective than teacher Y on the measures indicated. It also might appear that teacher X is significantly more effective as a variable than the counseling, on the basis that teacher X significantly influenced performance on four out of the six measures used in the study in contrast to the one measure which was significantly influenced by the counseling approach. The further meaning of these differences will be discussed in the remainder of this chapter under the headings: Null Hypotheses Discussed and Teacher Variable Discussed.
Null Hypotheses Discussed

1. There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Raven's Coloured Progressive Matrices.

A significant difference was found at the p .05 level between counseled and non-counseled groups as measured by the Raven's Coloured Progressive Matrices. Therefore, the null hypothesis was rejected. In order to attempt an accurate interpretation of meaning of this finding, a quote from Raven (1958) describing mental development in childhood and what the Coloured Matrices illuminates in relationship to this may be helpful:

... more like salmon leaps in the stream of life than the equally arranged rungs of a ladder (is mental development in childhood). Convenient as the latter hypothesis may be for quantitative assessments and statistical computations, it does not seem to correspond to any psychological reality in the life of the child, who seems rather to make successive attempts to surmount some intellectual obstacle until one day he suddenly leaps over it with ease, and goes on without difficulty to the next. It is these running leaps in his intellectual development which the Coloured Matrices can elucidate.

Raven (1958) clarifies what is involved in these "running leaps" when he describes what he was attempting to measure with the Matrices. He was attempting to measure "the ability to perceive relationships" and called the instrument "a test of observation and clear thinking." He continues, "Each problem
in the scale is really the "mother" or "source" of a system of thought, while the order in which the problems are presented provides the standard training in the method of working."

Cronbach (1960) describes further the matrix item as, . . . a "two-dimensional" analogies problem. . . . The subject is directed only to select the design that completes the pattern. The figures are altered from left to right according to one principle, from top to bottom by another. The subject must identify these principles and apply them to determine the needed design.

Cronbach continues in pointing out the advantages of the Raven and especially as it applies to the population in the present study:

(This) purely nonverbal score . . . has one special function in school testing. It calls attention to pupils who have good reasoning ability but who are below standard in reading and verbal development. Such cases are obscured by a test that mixes verbal and nonverbal components together, and thus the school overlooks children who could do much better work if given suitable help.

Jensen's comment (1969) would lend support to the above statement:

. . . the I.Q. tests are unfair to disadvantaged children because they put too much emphasis on "cognitive" learning (abstract reasoning and problem solving) and do not tap the child's ability for "associative" or rote learning . . . children in the 60 to 80 I.Q. range, whether white, Negro, or Mexican American, do markedly better in associative learning tests than middle class children in the same I.Q. range.

As has been pointed out by Raven (1958) a part of the Matrices was an attempt "to reconsider Spearman's 'Principles of Cognition' in the light of Gestalt theory" and to "keep in mind
the effect which the context or field of thought has upon the order of solution preferred . . . " Raven is attempting to measure factors which correspond to Spearman's "g" factor or "general learning ability."

This "general learning ability" has been defined by Terman (1916) as "the tendency to take and maintain a definite direction; the capacity to make adaptations for the purpose of attaining a desired end; and the power of auto-criticism." Spearman (1923) in defining this concluded that "g" consists of facility in "apprehension of one's own experience, the eduction of relations, and the eduction of correlates." Cronbach (1960) has interpreted this to mean "making observations and extracting general principles." It is on this basis that the Raven's Progressive Matrices corresponds to Spearman's "g" factor.

If it is an accurate assumption that the pupils in the present study have found it increasingly difficult to relate to school successfully because the situation itself is unrelated to their everyday life, then it is not difficult to understand why they would be placed in this "predictive dropout" category. If we further assume that their initial learning experiences encouraged them if not forced them to abandon their learned ways of responding to life (i.e. the notion of "public" English (white) versus "private" English (Black)) before they could even begin to feel security in the learning situation, then it does not seem
difficult to understand a noticeable withdrawal pattern or an aggressive "I'll get even one day" attitude.

It was on this basis, namely, that this population in the present study had in various forms never been permitted entry in the psychological sense of experiencing a sense of belonging, into the learning experience and that before one could expect actual achievement gains a more fundamental experience of belonging to the learning environment would have to be provided. It would be from these "learning readiness experiences" that they might gain a better basic learning capacity.

As has been indicated by Cronbach (1960) in a discussion about the weaknesses of achievement tests for this population, many are so constructed as to have no relationship to the real world these students know. In this unrelated and defeating situation, one will tend towards random reactions and this undirected response pattern might tend to reinforce a kind of disorder and distraction leading away from goal oriented behavior. It would be this unrelatedness, this sense of non-belonging, which might further either anxiety or indifference in the pupil and distortion and failure in the learning process.

Moving a step further in attempting to interpret the finding in the present study, the types of experiences the counseled pupils had need to be delineated. The tasks involved were designed to provide a series of opportunities for the pupils to build up and take apart a variety of symbolic cues in
a meaningful context. The ability to analyze and synthesize raw material has generally been accepted as essential to the learning process.

Rowland (1969) in describing the structure-process approach to cognition comments that:

Cognition is defined as knowledge-ordering behavior which integrates a multitude of sensory, imaginal, and symbolic cues . . . and provides an internal schema to guide motoric, ideational, and verbal behaviors.

It might be suggested that the nature of tasks involved in the present study afforded these pupils the opportunity, even if for a short period of time, to internalize some kind of schema; to begin to experience some kind of internal ordering process which they could be responsible for. In this sense the experiences not only provided opportunities to analyze and synthesize symbolic cues but it also provided opportunities to establish in a concrete way (i.e. the multi-sensory apparatus used in the study) a relationship or a bridge between their own operational world (i.e. the words they chose to spell or the comments they chose to make on the tape recorder) and the outside world (i.e. abstract symbols such as the alphabet which needed ordering if it were to have meaning).

In summary it was stated at the outset of the experiment that the purpose of the task oriented counseling experiences was to provide "learning readiness experiences" which would contribute towards changing these pupils' self-concept within the
school setting from negative to positive and their performance pattern from failing to succeeding. One final interpretation of the gains on the Raven might be that as these pupils were more accurately reflected at a performance level in school related tasks, they were freed (much as a client in counseling is freed to broader insight when he has genuinely been understood and accurately affectively-cognitively been reflected by the counselor) to more accurately observe what was going on around them, as well as more clearly perceive their own abilities and thereby begin to make more satisfactory relationships and commitment to the learning experience.

2. There are no significant differences between pupils in the task-oriented counseling experiences and those not in the experiences as measured by the Metropolitan Achievement Tests in Word Knowledge, Word Discrimination, and Spelling.

The analysis of the data reveal no significant difference between the counseled and non-counseled groups. Therefore the null hypothesis was accepted. In spite of the weaknesses already referred to in Chapter I regarding this type of instrument, it was decided to include it since it is in such frequent use in many school systems and probably will remain so for a number of years. Recent research (Bruininks and Feldman, 1970) sheds further light on the kind of skill achievement tests measure and while this "knowledge acquisition skill" might be evident over a longer period of time with these pupils, the
present study would more address itself to "divergent or creative skills." Bruininks and Feldman in a discussion of creativity, intelligence and academic achievement among disadvantaged pupils, suggest that creativity functions as one aspect of intelligence and that it requires a different set of skills. They would be suggesting a similar notion of intelligence as earlier cited in this chapter by Raven and Rowland that "intelligence . . . is a whole in which are included many abilities." Therefore, intelligence is some combination of divergent or creative skills and convergent or knowledge acquisition skills. The fact that standardized tests measure acquired knowledge rather than the creative use of that knowledge might be a further interpretation of the results in the present study.

The significant difference that was found between teacher X and teacher Y will be discussed later in this chapter.

3. There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Durrell Analysis of Reading Difficulty in Visual Memory.

The analysis of the data revealed no significant difference between the counseled and non-counseled groups on this measure. Therefore the null hypothesis was accepted. The significant difference that was found between teacher X and teacher Y will be discussed later.
One interpretation for this finding would be that the learning experiences as designed for the present study were not adequate for effecting this particular readiness skill.

4. There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Gates-McKillop Reading Diagnostic Tests in Auditory Discrimination.

The analysis of the data revealed no significant difference between the counseled and non-counseled groups. Therefore, the null hypothesis was accepted. As mentioned in the above discussion of null hypothesis number 3, the most obvious interpretation would be that the particular learning experiences were inadequately designed to reach these two basic learning readiness skills. As Strom (1965) has pointed out in his discussion about the slow learner and reading readiness programs:

... what is most needed (for the culturally handicapped child) is a readiness program that provides students many experiences with words including visual and auditory discrimination; with the concept of language; and with the idea of communication before they tackle the task of reading.

Teacher Variable Discussed

As was mentioned in Chapter III, due to recently published research (Rosenthal, 1966, 1967) suggesting that the personality and expectations of the individual teacher influences pupil performance, each teacher in the present study was treated as an independent variable. This "experimenter expectancy
effect" was considered in this study in the sense that the personality of the two teachers and the classroom procedures in the rooms from which these pupils were selected were regarded as factors influencing pupil test performance. Since the data revealed a significant difference between teacher X and teacher Y as measured by the Metropolitan Achievement Tests and the visual memory instrument, possible explanations for the difference may lie in procedural and personality differences.

Teacher X generated enthusiasm in his students and constantly conveyed his belief in them as being able to achieve. It seemed from comments by his pupils that they perceived him as genuinely caring about them and particularly caring that they achieved on the standardized achievement tests—the results of which significantly determined many of their future options (i.e. whether they would have to go to a vocational training school or a regular high school). In contrast, there was little evidence that teacher Y conveyed a similar type of enthusiasm, at least as it was reflected by a lack of comments from her pupils. There seemed to be a genuine caring conveyed but more on the order of maternal concern.

In terms of classroom procedure, as mentioned in Chapter III, teacher X used consistently more visual stimuli in the form of a reading machine. Much of the content studied from this machine was similar to that used on the Metropolitan
Achievement Tests. This additional and consistent practice would seem to have influenced pupil achievement especially in word knowledge, word discrimination, and spelling. It might also be proposed that his method of projecting stories on the wall and encouraging volunteer reading increased their active participation in the learning process.

**Summary**

This chapter has presented a discussion of the various results of the statistical analysis as well as the reasons for selecting the particular design for this study. The formula and steps for analyzing the data have also been presented. A brief discussion of the teacher variable was also presented. As a result of the statistical analysis of the data, one of the four null hypotheses was rejected. The other three null hypotheses were accepted.
CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

Summary

Problem

The fact that educators are now experiencing a population of approximately twenty percent who are not learning effectively has caused much examination and re-evaluation of not only this population of pupils, designated "slow-learners," but also of teaching methodologies necessary for this population. The literature concerns itself with the question of who the "slow-learner" is. Is he a function of society which necessarily must categorize him as a slow-learner because of standardized norms? Is he emotionally disturbed, sensorily impaired, underachieving and culturally deprived? Some literature discusses how the slow-learner perceives himself and how this affects his performance. Still another area deals with what practices are in use whether they be in special classes, in regular classes or intervention practices. A further area of literature discusses various procedures of teaching specific content or skill areas such as reading, mathematics, and language development. There are also publications of recent findings of federally funded or privately
supported research studies of the "culturally deprived" and which propose applying the major findings of these studies to various learning situations.

Purpose

The purpose of this study was to investigate and evaluate the effects of a series of task-oriented counseling experiences which were designed to be "learning readiness experiences" for this group of slow-learning third grade pupils. The counseling-learning model used in this study was based on the concept of conveying worth and importance to each pupil. Conveying worth, dignity, importance and responsibility was facilitated through the tasks. This model departs from psychological counseling in respect to the "raw material." In psychological counseling the focus is on the client, his feelings, his perceptions and many other aspects of his personal world. In the counseling-learning structure, the central focus is on the counselor-teacher's effort to understand and accept the pupil in his struggle with the task, whether it be history, a foreign language, learning the alphabet, or any other content area.

The apparatus and materials were designed to further pupil self-investment and tactile involvement in the learning process. An ordinary three-speed tape recorder was used for recording the sessions in the "O" formation. The unique apparatus used was one of several available through the Chromacord R Teaching System.
The particular apparatus used was a six-way portable learning lantern. It is composed of six individual compartments containing eight colored lights and six individual sets of switches to activate each of the eight lights. Curran (1968) describes the apparatus and how it differs from an ordinary teaching machine:

••. In what might be called a learning reinforcement color-discriminating system the pupil responds with a color code analysis of the visual or auditory stimuli. The stimuli may be presented separately or simultaneously. The main purpose of the learning apparatus is not simply to be a teaching machine but rather to be personalized and to facilitate the ease and freedom with which the students can learn together and communicate in learning with one another. In addition, its intent is to put the teacher—now seen as learning counselor—in a position of aid and support, warmth, acceptance and understanding, in place of the usual position that the teacher occupies.

A small doorbell chime mounted in a wooden block and blank white cards (2 x 3) were used to write the words the pupils had chosen to spell on the lights. One copy was given to the pupil; a second was placed on a "Special Words" bulletin board in the room. While the experiences were highly structured, a limited number of options (i.e. the learning lanterns, the tape recorder, or a dictated story which the learning-counselor typed as it was being dictated) were available during the individual sessions.

This counseling-learning model focused on developing a sense of belonging and relatedness, a sense of self-identity and importance, and a sense of responsibility and control over one's own actions.
Null Hypotheses

The following null hypotheses were tested:

1) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Raven's Progressive Matrices.

2) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Metropolitan Achievement Tests in Word Knowledge, Word Discrimination and Spelling.

3) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Durrell Analysis of Reading Difficulty in Visual Memory.

4) There are no significant differences between pupils in the task-oriented counseling experiences and those not in these experiences as measured by the Gates-McKillop Reading Diagnostic Tests in Auditory Discrimination.

Population

Forty-eight "Primary Z" pupils were selected from one school in one district of the Chicago Public Schools. Two samples of twenty-four were drawn from two rooms and randomly assigned from within each room to counseled or non-counseled groups.
Instruments

All pupils were given the Raven's Progressive Matrices (Revised Order, 1956, A and Ab); the Metropolitan Achievement Tests--Word Knowledge, Word Discrimination, and Spelling; the Durrell Analysis of Reading Difficulty--Visual Memory; and the Gates-McKillop Reading Diagnostic Tests--Auditory Discrimination.

Procedures

The procedures included two basic activities described as "Formation I" and "Formation O." There were eight group sessions and two individual sessions over a period of six weeks. Each group consisted of six pupils--two girls and four boys. The group sessions were one-half hour in length and the individual sessions fifteen minutes each. The group sessions met twice a week in the mornings and the two individual sessions were the fifth and sixth in the series of ten. Each half-hour session was divided into two fifteen-minute sessions.

Conclusions

As had been indicated in the previous chapter, the data in the present study revealed evidence which permitted the rejection of one null hypothesis and the acceptance of the other three. The fact that there were no significant interactions between the counseled and non-counseled groups on the one hand, and teacher X and teacher Y groups on the other, allows for the following conclusions to be drawn:
1) Counseled groups differed significantly from non-counseled groups as measured on the Raven's Coloured Progressive Matrices.

2) Counseled groups did not differ significantly from non-counseled groups as measured by the Metropolitan Achievement Tests in Word Knowledge, Word Discrimination, and Spelling; the Durrell Analysis of Reading Difficulty--Visual Memory; and the Gates-McKillop Reading Diagnostic Tests--Auditory Discrimination.

3) Teacher X pupils differed significantly from teacher Y pupils irrespective of whether they were counseled or not as measured by the Durrell Analysis of Reading Difficulty--Visual Memory and the Metropolitan Achievement Tests in Word Knowledge, Word Discrimination and Spelling.

The meaning of the findings of the present study can best be stated in terms of the purposes for which the "learning readiness experiences" were designed. As was described in Chapter I, these experiences were designed to facilitate "entry" and "a sense of belonging and relatedness" to the learning experience in the school setting. Through this entry and genuine sense of belonging to school related tasks, it was anticipated that self-concepts would change from negative to positive. Through experiencing the relatedness of the tasks involved in the experiences, as well as being permitted maximum control over and responsibility for helping to shape this relationship, it was
readily conclude that as a result of the counseling experiences they became motivated in the direction of succeeding.

In the design and intent of the learning readiness experiences, it was also anticipated that some secondary gains would be evidenced in subject matter (i.e. spelling) and educational proficiencies (i.e. word knowledge and word discrimination) as well as two basic reading readiness skills (i.e. visual memory and auditory discrimination).

From the evidence of the data the most obvious conclusion would seem to be that these secondary gains were not adequately enough planned for in the present study. The fact that the experiences lasted over an extremely short period of time (six weeks) and were limited to ten sessions would be evidence of inadequate planning for these specific goals. It would seem that a longer exposure to the task-oriented experiences and more intricately designed experiences would be necessary before these secondary gains could even be tested.

Therefore, in summary, the present study would lead to the conclusion that the "learning readiness experiences" do tend to influence positively these pupils' ability to observe clearly and to perceive relationships. It is tentatively suggested from this finding that if these abilities can be improved through experiences similar to the ones used in this study, then these pupils and possibly others can be helped to have a better basic learning capacity and that from this better fundamental learning
base they could continue to give evidence of gaining in other academic skills which are necessary to succeeding in our present school learning environment.

Recommendations

On the basis of the findings of the present study the following recommendations would seem to be called for:

1) It would seem worthwhile to conduct further research employing the basic concepts of the "learning readiness experiences" and extending the period of exposure over a much longer period of time (i.e. one or two semesters). As was mentioned earlier the learning experiences might more adequately be planned to include tasks designed to influence specific learning readiness skills (i.e. visual memory and auditory discrimination).

2) Further research might be conducted to reveal whether certain pupil characteristics might be more responsive to this type of counseling-learning approach. Various age levels would undoubtedly reveal worthwhile information regarding patterns of responsiveness and success to various tasks.

3) This particular approach could be explored with pupils evidencing brain damage, dyslexia, and other learning disabilities. Since this approach can use simply a non-verbal mode of communication (i.e. the color code system of communicating) it would seem to offer an area of research with the child or adult who cannot communicate effectively verbally (i.e. the autistic
child, the extremely shy and withdrawn pupil, or the schizophrenic).

4) The dynamics around the apparatus and the tasks used in the study would offer a fruitful area of investigation. This type of investigation might help us delineate more clearly the function and role of peers in influencing behavior, attitude, and learning skills.

5) Since the Raven instrument is able to distinguish at least "five qualitative developments in the order of intellectual activity," using this instrument as a diagnostic tool might further our ability to prescribe specific learning experiences in an attempt to aid the development of intellectual activity among our slow learners.

6) It would most surely be recommended to repeat this type of study with slow learners from backgrounds other than the inner-city and in other areas of the country, before any broad generalizations could be made validly.

**Implications in the Present Study**

The present study has within it significant implications for the learner, the learning process, and for curriculum development at the elementary level.

**The Learner**

As has been discussed in this study and in the literature in general, the educational process as we now know it at all
levels of education is inadequate whether it be in the inner-city or in the suburb. Many attempts are being made to explore and if possible remedy these weaknesses. One of the "newer" trends which seems to be a putting into practice of the Deweyan concept of "learning by discovery" can be observed currently in many "open classrooms," "informal classrooms," or "open corridors." While these appear to be totally new experiments, fundamentally they are fresh expressions of attempts to get the learners involved in their own learning process. Without making any value judgments regarding these approaches, for they will have to stand the test of time and experimentation, it does seem worthwhile to propose some possible difficulties or disadvantages in these approaches which the present study tends to offset.

One difficulty in the present "do-your-own-thing" programs, is that this individuality may tend to promote such diversity and uniqueness for the learner that he may eventually be caught in a deep sense of alienation and non-belonging to any kind of common learning task. He may further be handicapped in the sense that he may become so unpracticed in a cooperative group or common learning task that he loses the ability to do so.

Observing some present college students, many of whom have already been exposed to this type or earlier versions of a "progressive" educational program, reveals that they seem to be suffering the disadvantages of having had to learn in a competitive situation. For example, when a college class was presented
with a new learning experience, such as one modeled from those described in the present study, an immediate reaction for some to the new experience was to defensively criticize and "prejudge" whether it would be worthwhile before they had even begun the experience. The self-fulfilling prophecy is immediately evident in this kind of predetermining the experience before it begins.

Prescinding from this kind of evidence, we could say that "something" has left these students almost incapable of learning in a non-competitive, cooperative, team effort, unless it be in the athletic or drama department. The thought of this type of learning in the English class, History class, Mathematics class, or any other seems strange indeed.

If we draw from the present study, there seems to be evidence that some necessary prerequisite attitudes and learning skills do exist which if integrated may help the student from becoming skillfully prejudiced, narrowed, and constricted in his response to and interpretation of any new learning experience. One could propose that the competitive, individualistic, "do-it-yourself" skills simply equip a learner to destroy any common learning task or experience before it has had a chance to be "born."

Prerequisite Experiences and Attitudes

What are these prerequisite experiences and what attitudes do they contain? Drawing from the counseling-learning model, it
seems that if students are to learn how to constructively approach a new learning experience they can best be taught these new approaches in and through a new learning experience. This was the intention of the "learning readiness experiences" described in the present study. The present study seems to suggest that if students are given even a short-term exposure to a creative and constructive experience, they may learn from this a more effective model of approaching other learning experiences. If they have a non-threatening, non-competitive, sharing, and cooperative learning experience—in an academic subject—then the first attitude or awareness which seems to become operational is that they do not have to defensively protect themselves against failure or making a fool out of themselves. On the contrary, experiencing this openness and cooperation and trust, they can totally commit themselves to the task at hand and do not have to expend half their energy protecting themselves and the other half invested in the learning task.

This is not to imply that one need not be prudent or develop discrimination and analytical skills. This kind of discrimination is essential if one is to totally integrate whatever one wishes to learn. The issue is that maybe we have taught too soon and too well these analytical and critical skills. In a sense maybe we have "the cart before the horse." Perhaps we have aided students very well to develop their powers of discrimination before they have had a chance to genuinely invest in an area
of knowledge about which they can then be legitimately critical and so constructive in their evaluations.

The Learning Process

Another exciting implication for the learning process which the present study suggests is that certain learning skills (i.e. analyzing and synthesizing or "particularizing and universalizing") may best be learned in the kind of task-oriented counseling-learning experiences that were used in the present study. The above statement is made on the basis that the Raven's Coloured Progressive Matrices is primarily concerned with measuring "at least five qualitative developments in the order of intellectual activity." In looking carefully at these areas they all pertain to the ability to discriminate, differentiate, analyze and synthesize patterns.

While the experiences described in the present study did not focus on these particular skills, something in the experience seemed to influence a growth in these skills as was indicated by the significant difference between groups as measured by the Raven's. We would like to propose that possibly what happened was that the learners were freed because of a lack of threat and competition to engage more totally in the learning activities and somewhat unbeknown to themselves become more skilled in the various task demands of the activities. For example, something of this kind of experience is caught well by the person who
relates that he reads well but cannot remember how he learned to do this. It just "happened." We would propose that this kind of person became so totally involved in the task and that nothing from the outside blocked him at the beginning of the experience that the "learning how to read" flowed so naturally from the involvement that he could only remember what he read but not how he learned to do it.

One further implication in the present study is information it may reveal about the learning task itself. Since the apparatus requires student involvement (i.e. each student must activate his own learning lantern) and since the programming affords opportunities to practice these basic learning skills (i.e. analyzing and synthesizing, discriminating and integrating) then possibly these tasks or "learning readiness experiences" do, in fact, enhance one's general learning capacity. We have discussed "intelligence" and presented numerous definitions. If it is accepted that there are two fundamental aspects to functioning "intelligently" in any relationship (i.e. becoming personally involved and invested in the experience and exercising discriminating and integrating skills) then a process and experience which facilitates this involvement and at the same time requires the use of these skills ought to give evidence of a more effective general learning ability. Conclusive statements to the effect that this is what actually happens as a result of these "learning readiness" and "task-oriented" counseling experiences
must await further investigation, but the present study tends in that direction.

**Elementary School Learning-Counselor**

For a number of years in the recent past the elementary school counselor has been attempting to define his role more exactly as it pertains exclusively to the elementary pupil. There has always been the confusion about the uniqueness of elementary school counseling as distinguished from high school and college counseling. There has also existed the anxiety on the part of many professionals in the field of the inadequacy of an elementary counseling program which has been modeled after the high school or college program with no real thought given to how counseling skills might be uniquely rethought for younger pupils.

As an example, Faust in tracing the development of the elementary school counselor's role speaks of the new elementary school counselor as the "developmentalist." He lists fifteen "commitments" which delineate what the "developmentalist" actually does in the schools. His primary responsibility is "in developing effective learning climates, largely through (working with) the teachers . . ." It seems that they tend to use their counseling skills to help the teachers better help the students.

In contrast to this kind of "helping" the teacher by being available for consultation and by encouraging him to focus on creating an effective and positive learning climate, the present
study suggests a unique role for the elementary counselor who might be called a "learning-counselor." The present study suggests that we have shed more light on some of the particular aspects of what actually composes an "effective and positive learning climate." Drawing from this more accurate and detailed knowledge of the psychological dynamics in which the learner is involved in the learning process, learning-counselors could be trained for this and function directly with the pupils instead of through the teachers. This would not be intended to set up any kind of competitive structure with the classroom teacher. It would simply be proposing another solution (which would have to be tried out) to the ever-increasing awarenesses of the complexities of the human person in the learning process.

The whole area of special education has made us vitally aware of the fact that we must begin to draw upon the resources of all the "helping" and "teaching" professions. We would propose that the elementary school learning-counselor become less involved directly in modifying behavior (be it pupil or teacher) and more involved in experiencing the learning process and in turn becoming skilled in recreating this experience and being the person through whom the student enters the learning experience.

The primary focus then, for the "learning-counselor," would be the personal relationship with the pupils, in and
through task-oriented experiences. The focus would not be on psychological difficulties and weaknesses but on facilitating the unfolding of psychological strengths and general learning abilities. The type of counseling-learning experiences presented in the present study and various adaptations would attempt to facilitate integration of the basic learning skills so that transfer to any other "subject area" would be a natural and normal process.
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APPENDIX A

Ordinary Apparatus

An ordinary three-speed tape recorder supplied by the school was used for recording the sessions in the "O" formation.

Unique Apparatus

The unique apparatus used in this study was one of several apparatus available through the Chromacord Teaching System. The particular apparatus used was a six-way portable learning lantern. It is composed of six individual compartments containing eight color signal lights and six individual sets of switches to activate each of the eight lights. Curran (1968) describes his apparatus and how it differs from the teaching machine:

... In what might be called a learning reinforcement color-discriminating system, the pupil responds with a color code analysis of the visual or auditory stimuli. The stimuli may be presented separately or simultaneously.

The main purpose of the learning apparatus is not simply to be a teaching machine but rather to be personalized and to facilitate the ease and freedom with which the student can learn together and communicate in learning with one another. In addition, its intent is to put the teacher--now seen as learning counselor--in a position of aid and support, warmth, acceptance and understanding, in place of the usual position that the teacher occupies.

A small doorbell chime mounted in a wooden block and blank white cards (2 x 3) were used to write the words the pupils had chosen. One copy was given to the pupil; a second placed on a "Special Words" bulletin board in the room.
APPENDIX B

The following four examples of individual sessions are exact transcriptions from tape recordings and typed copy. These four were selected at random to illustrate in more detail the content of the individual sessions. They would be representative of the general content and form of most of the individual sessions. Pupils were given an option of working with the tape recorder, dictating a story, working with the Chromacord, or some combination of these if time permitted.

Individual Session Number 1

Pupil: My name is R. C. and I am in Room 109, P.Z. and every Wednesday and Friday I come down to 007. Ain't you going to say something?

L-C: I don't have anything special to say and this is your time.

Pupil: I want you to say something on the tape recorder. Here. (She hands the microphone to the learning-counselor.)

L-C: My name is Miss R. and R. is in my class on Wednesday and Friday and comes down to 007.

Pupil: Okay. Thank you. Now let's play it back.

(The tape recorder was played back and then started again.)

Pupil: Hello. My best friend is V. B. and my best teacher is Miss R. and I like it at M. School. It's the best school I ever went to and I'm glad I'm going to this school.
L-C: You really like M. School and your best friend is V. and you think I'm your best teacher.

Pupil: Yes. M. is M. School. (This is the first line of the school song.) Let's listen back to it.

(The tape recorder was played back and then begun again.)

Pupil: It's nice and peace and quiet when nobody be down here with you and wait a minute. Miss R. can't we play that other tape recorder, that little one (a cassette recorder was also used from time to time); can't me and you sing that song--A, B, C?

L-C: Sure, just a minute and let me get it. Do you want to sing along with the tape or listen to it first?

Pupil: Sing with the tape.

(Together they sing the "Calypso Alphabet Song" which had been used in the learning experiences. Just as they finished the last letter in the song and before the music stopped, she asked:)

How you know everybody who in my classroom?

L-C: How do I know everybody, by name you mean?

Pupil: Yeh.

L-C: Well, everybody's been coming down here.

Pupil: Huh-uh, not everybody's in my room. Them in the other rooms, how you know their names?

L-C: Well, I don't know all their names, but I'm learning as many as I can. I like to be able to match names and faces so when I see you someplace else I'll know who you are. Shall we listen back because our time is about up?

**Individual Session Number 2**

Pupil: R. and them going to come down here and hear what I said?

L-C: Nobody else is going to listen to what you said.
Pupil: We going to come down one by one? (The learning counselor nods, yes.) Oh. (pause) What to say?

L-C: Hard to think of something. (pause) Can't think of anything?

Pupil: Can't think of nothing. Do you know anything I can say.

L-C: You would like me to give you some help about what to say? You really can't think of anything to say. We can stop it here and think for a little bit if you like. (She smiled and shook her head indicated "yes.")

(The tape recorder was stopped for about a minute.)

Pupil: Can we turn it on? (Sigh) Uh (pause) (She whispers to the learning-counselor that she has some candy in her desk then says louder) Can I say that? I got some candy in my coat pocket and the teacher don't even know it and I didn't give nobody nothing and they don't even know nothing about it and when I get outside they going to try to snatch it.

L-C: You're keeping it in your pocket so nobody will know about it?

Pupil: Can I say a poem, some rhyming words?

L-C: Anything you like.

Pupil: One, two, three on the coconut tree. (Laughs nervously) I am eight years old. I will soon be nine years old. My name is C. F.

L-C: Shall we listen back to it?

Pupil: Uh-huh.

Individual Session Number 3

Pupil: My name is D. J. I am in Room 110. I am in 007 now. The speech teacher is nice. Her name is Miss R.

L-C: You are D. J. and you come from Room 110 and you like to come to 007 and you like me.
Pupil: Let's listen back.

(They listen back.)

I told my mother to brought me that record "Say it loud, I'm Black and I'm Proud." My sister is B. and she say she know how to do it, say it loud, I'm black and I'm proud. You ought to have a record that say I'm white and I'm proud. My little sister is at M. and her teacher is . . . in Room 200. My older sister named B. and she in the old building. Her teacher name is . . . and she on the third floor.

L-C: You'd like that record "I'm Black and I'm Proud" and your sister is going to show you how to do it. You think I ought to have one too that says "I'm white and I'm proud."

Pupil: Yeh. Can I say anything I want?

L-C: Yes, no one else is going to listen to the tape.

Pupil: Miss R. and I are down here by ourselves and I am talking on the tape recorder. Now you say something.

L-C: Well, D. and I are down in 007 and we are using the tape recorder and our time is just about up.

Pupil: Everybody know that "Here Come the Judge" and Miss R. is the judge of me while I am down here with her and here come the judge. Let's listen back.

Individual Session Number 4--Dictated Story

A., K., and F., we are friends and we play together and we go into the house and play with our racing sets. We have fun playing together. We wrestle in the grass and we get more friends. A. and F. always like to play with someone and we like to play with our little brothers and when I finish eating I go outside again to play with K. and F. We always get stuck in the elevator and a lot of times. We play in the hallways when morning comes we talk about when we get stuck in the elevators. That's all.

(The learning-counselor was seated at a typewriter and was typing the story as it was dictated.)
APPENDIX C

Unless otherwise indicated the descriptions of the instruments presented in this section have been taken from the manuals accompanying each instrument. The references can be found in the Bibliography.

The Raven's Coloured Progressive Matrices

The Coloured Progressive Matrices are designed for use with young children and old people, for anthropological studies, and for clinical work. They can be used satisfactorily with people who for any reason, cannot understand the English language. The scale as a whole can be described as a test of observation and clear thinking. Each problem in the scale is really the "mother" or "source" of a system of thought, while the order in which the problems are presented provides the standard training in the method of working. Hence the name "Progressive Matrices."

Cronbach (1960) describes the matrix item as:

... a "two-dimensional" analogies problem ...

The subject is directed only to select the design that completes the pattern. The figures are altered from left to right according to one principle, from top to bottom by another. The subject must identify these principles and apply them to determine the needed design.

This instrument was chosen for the present study because it gives indications of a good reasoning ability before the pupil
has reached the level of reasoning by analogy. Verbal understanding plays little part and this purely nonverbal score does call attention to the pupil who has good reasoning ability but who is below standard in reading and verbal development. Such cases are obscured by a test that mixes verbal and non-verbal components together and thus the school overlooks children who could do much better work if given special help.

The Metropolitan Achievement Tests

These tests comprise a coordinated series of measures of achievement in the important skill and content areas of the elementary and junior high school curriculum. The intent of the tests was to aid the teacher to effectively understand and analyze pupil achievement and to evaluate pupil growth.

Word Knowledge is a 50-item vocabulary test. In each item the word to be defined is presented in a very brief sentence; the pupil selects from four choices the one which best completes the sentence, the correct choice most often being a synonym of the stimulus word. Emphasis is on knowledge of the literal meaning of the words. The words tested were selected on the basis of an analysis of thirteen reading series, represent words that occur frequently in the reading of children in grades 3 and 4.

Word Discrimination is a 36-item test of ability to select a given word from among several words of similar configuration. Each item consists of a sentence from which a word has been omitted; the pupil must select the proper word to complete the sentence from among four similar-appearing words. The ability to attend to small differences in the configuration of words is an important part of word-attack skill.
Spelling is a 40-item test in which each word to be spelled is presented orally by the examiner in an illustrative sentence. The words tested were selected on the basis of an analysis of vocabulary lists and leading spelling series; they represent words occurring with greatest frequency in the spelling series of grades 3 and 4.

The Durrell Analysis of Reading Difficulty

The Analysis consists of a series of tests and situations in which the examiner may observe in detail various aspects of the child's reading.

Visual Memory is a test which involves the use of a tachistoscopic device which shows one of twenty words at a time. The child is given two or three seconds to see the word and then circle the same word on his answer sheet out of a choice of five similar words.

The Gates-McKillop Reading Diagnostic Tests

This instrument answers the question: "What particular skills are undeveloped and what ones are matured to a normal or superior degree?"

Auditory Discrimination is a test most useful for children with a foreign language background. In addition, many children from lower socio-economic areas do not have home experiences and training in making the particular sound discriminations upon which most school instruction is based. In this test pairs of words are said once and the child is to indicate whether they are similar or dissimilar.
The dissertation submitted by Jennybelle Picket Rardin, has been read and approved by members of the School of Education in the Department of Guidance and Counseling.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

12 May 1971

Signature of Advisor