THE EFFECT OF TWO METHODS OF REPORTING PUPIL PROGRESS
ON ADJUSTMENT AND ACHIEVEMENT OF FOURTH GRADE
STUDENTS IN A SUBURBAN ELEMENTARY SCHOOL

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Horn, John D., The Effect of Two Methods of Reporting Pupil Progress on Adjustment and Achievement of Fourth Grade Students in a Suburban Elementary School. Doctor of Education (Elementary Education), August, 1971, 141 pp., 35 tables, bibliography, 100 titles.

The present research was an investigation of the effect of two methods of reporting pupil progress on adjustment and achievement of fourth grade pupils in a suburban elementary school. One method involved the use of an evaluation form reflecting performance in terms of ability, parent-teacher conferences, and work samples. The other method was comprised primarily of competitive grading and marking procedures, utilizing a standard report card to report results.

The purposes of this study were to ascertain the relationship between these two methods of reporting and (1) academic achievement, (2) anxiety level, (3) self-concept, and (4) peer associations.

Utilizing "Solomon's Four Group Design," four sections of 116 fourth graders were evenly matched on intelligence, reading level, academic achievement, and number of children with a history of behavior problems. The duration of the experiment was for one academic year.
The data gathering devices included formal tests, unfinished stories, taped interviews, student surveys, and parent evaluations.

The procedure for analysis of quantitative data encompassed the use of analysis of variance. Samples of other collected data were presented and analyzed.

Comparisons were made between mean gains of experimental and control groups. Groups were divided by IQ into approximately the upper and lower thirds for further comparisons. Selected analyses were also conducted on differences obtained when compared by sex.

Findings

The major findings include the following:

1. No statistically significant differences from analysis of variance of mean gains were obtained regarding the twelve hypotheses tested in this research investigation.

2. Directions favoring the experimental groups were obtained for all seven group comparisons relative to mean gains in achievement and five of the seven group comparisons relative to self-concept.

3. Seventy-eight per cent of the experimental pupils liked the system of reporting without grades.

4. Ninety-one to 100 per cent of the parents considered the report adequate, and 76 per cent indicated that they liked the method of reporting without grades.
Conclusions

Major conclusions include the following:

1. It may be concluded that children in this study who did not receive grades performed as well academically as those pupils who received grades. The motivating influence usually attributed to competitive grades did not appear to be operative for the controls in this situation.

2. The fact that the majority of pupils liked this system of reporting and the fact that they were able to explain it to others led to the conclusion that they could adjust to such a program even in a grade-oriented society.

3. Deduced from the parent responses, it may be said that these parents were capable of understanding and discerning the potential merit of this type of reporting system.

Recommendations

1. A similar study should be conducted on a longitudinal basis with pupils in an experimental group who start in first grade and complete at least four years of schooling without grades. The potentially harmful effects of grades may not be measurable in children in a shorter period of time as their effect may be a long-term process.

2. The problem of anxiety should be investigated to determine if there is a basic difference between general anxiety and what might be termed school-related anxiety.
THE EFFECT OF TWO METHODS OF REPORTING PUPIL PROGRESS
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STUDENTS IN A SUBURBAN ELEMENTARY SCHOOL

DISSERTATION

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

For the Degree of

DOCTOR OF EDUCATION

By

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Denton, Texas
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CHAPTER I

INTRODUCTION

Concern for the optimum development of the whole child has led dedicated educators to be vitally interested in those factors thought to influence greatly the child's growth processes. By virtue of their training, experience, and daily work, professional educators constitute the most competent group to assess thoroughly school-related influences on child development. One factor that is prevalent throughout the child's school years is the ever-present grade or mark given by his teachers supposedly to indicate the quality of his school work.

Through the years a great deal of research has been conducted about many aspects of adjustment and achievement of school children in an effort to provide an educational environment conducive to the child's developing to his highest potential. Published articles are quite numerous on the subject of adjustment, achievement, and grades, but few research studies have been reported on any phase of their relationship to each other. Kingston and Wash report that the majority of these articles tend to reflect for the most part only personal and professional opinion or bias (14, pp. 36-40).
In the current age when life and society are becoming increasingly complex and daily pressures on children in particular are mounting, it would appear that serious attention should be given to the influences of any aspect of school life as pervasive as grades and marks. As an alternative, a variety of reports derived from non-competitive measures and evaluations was proposed. The quality of pupil performance was evaluated in terms of individual ability. The reports were a comparison of actual performance with expected performance. More specifically this reporting method included (1) a sheet for each subject area reflecting performance in terms of expectations, major objectives, strengths and weaknesses; (2) parent-teacher conferences; and (3) numerous work samples with teacher comments. A scientifically designed study of the relationship of these two methods of reporting to some measures of student adjustment and achievement seemed warranted.

Statement of the Problem

The problem of this project was a study of the effect of two methods of reporting pupil progress on adjustment and achievement of fourth grade students in a suburban elementary school.

Purposes of the Study

The purposes of this study were to ascertain the relationship between these two methods of reporting and
(1) academic achievement, (2) anxiety level, (3) self-concept, and (4) peer associations. Another primary purpose was to analyze the implications of the findings for educators in planning and improving student evaluation programs and parent reporting methods.

Hypotheses

To accomplish the purposes of this study, the following hypotheses were formulated:

I. The experimental group will:
   A. achieve a significantly higher mean gain on the Stanford Achievement Tests than will the control,
   B. attain a significantly higher mean gain on the Piers-Harris Children's Self Concept Scale than will the control group,
   C. attain a significantly higher mean gain on the sociometric scale than will the control group,
   D. attain a significantly lower mean gain on the Manifest Anxiety Scale for Children than will the control group.

II. There will be no significant difference between mean gains of experimental boys and experimental girls on the:
   A. Stanford Achievement Tests,
   B. Piers-Harris Children's Self Concept Scale,
   C. sociometric scale,
   D. Manifest Anxiety Scale for Children.
III. Experimental girls will attain a significantly higher mean gain than control girls on the:
   A. Stanford Achievement Tests,
   B. Piers-Harris Children's Self Concept Scale,
   C. sociometric scale.

IV. Experimental girls will attain a significantly lower mean gain than control girls on the Manifest Anxiety Scale for Children.

V. Experimental girls will attain a significantly higher mean gain than control boys on the:
   A. Stanford Achievement Tests,
   B. Piers-Harris Children's Self Concept Scale,
   C. sociometric scale.

VI. Experimental girls will attain a significantly lower mean gain than control boys on the Manifest Anxiety Scale for Children.

VII. Experimental boys will attain a significantly higher mean gain than control boys on the:
   A. Stanford Achievement Tests,
   B. Piers-Harris Children's Self Concept Scale,
   C. sociometric scale.

VIII. Experimental boys will attain a significantly lower mean gain than control boys on the Manifest Anxiety Scale for Children.

IX. Experimental group low IQ's will achieve a significantly higher mean gain than control group low IQ's on the:
A. Stanford Achievement Tests,
B. Piers-Harris Children's Self Concept Scale,
C. sociometric scale.

X. Experimental group low IQ's will attain a significantly lower mean gain than control group low IQ's on the Manifest Anxiety Scale for Children.

XI. Experimental group high IQ's will achieve a significantly higher mean gain than control group high IQ's on the:
   A. Stanford Achievement Tests,
   B. Piers-Harris Children's Self Concept Scale,
   C. sociometric scale.

XII. Experimental group high IQ's will attain a significantly lower mean gain than control group high IQ's on the Manifest Anxiety Scale for Children.

Background and Significance of the Study

The practice of competitive grading in the elementary school has been a matter of great concern for many years. As early as 1937, Smith reported that dissatisfaction with traditional grade reports was increasing (21, p. 102). Most of the concern has been expressed in terms of parent discontent with the reports themselves, however, and not with their potentially harmful effects on the child. On the other hand, Smitter did offer criticism of grading in this regard when he said, "The meager description of the learning process contained in a letter grade does not assist the child or his
parents to remedy weaknesses or capitalize on strengths" (22, p. 166).

Considerable criticism has been directed against a competitive basis for marking. The 1960 edition of the Encyclopedia of Educational Research cited eight studies which identified some of the more unfavorable effects on the pupil, such as resulting antisocial attitudes and behaviors (20, p. 788). Review of the last four volumes of this source (16, 17, 20, 23), covering forty years of research, revealed no studies supporting a competitive basis for marking.

In 1966, a very stimulating article appeared which revealed an even greater degree of concern for the effects that grades were having on children. In this report, Gaier dealt with the psychological effects of grading in terms of anxiety, self-concept, and adjustment. Though his treatise was a review of the literature and not a report of original research, he did rather poignantly identify the need for experimental research in this area (10, pp. 43-47).

Though many persons have generally assumed that competitive grading increased achievement, this assumption has been questioned many times. As far back as 1935, Otto and Melby found no difference in achievement between children threatened with failure and those assured of promotion (18, pp. 588-589).

The 1969 edition of the Encyclopedia of Educational Research (23) presented quite an impressive list of
criticisms for grades or marks as they are normally given in American schools. Among those are the following:

1. Marks provide an inaccurate assessment of competence and are not used in a comparable way from school to school, department to department, or instructor to instructor.
2. Marks are little, if at all, related to achievement of the central and important objectives of the educational program and focus attention upon false and inappropriate objectives.
3. Marks fail to provide a constructive medium of communication between school and home.
4. Marks and report cards produce a variety of side effects detrimental to the welfare of the child. At least four types of side effects have been of concern to critics:
   (a) the debilitating impact of chronic failure
   (b) cutthroat competitiveness and resulting anxiety
   (c) widespread cheating and dishonesty
   (d) distorted educational value patterns, which make the appearance rather than the substance of learning the important thing (23, p. 760).

The most comprehensive disquisition about the extreme pressures applied to America's children was reported by Doll and Fleming in *Children Under Pressure*. They cited psychologists as deploring the overemphasis on grades and concluded their comments on grades and academic achievement by saying, "We pay a high price for this pressure in blocks to learning, in mental breakdown, and in juvenile delinquency" (9, p. 23).

The rationale most commonly advocated in favor of grades was found to be incompatible with the basic philosophy underlying the Association for Supervision and Curriculum Development Yearbooks for 1950, 1962, and 1966. There are
ample implications that grades serve to hinder the attainment of principal educational goals (1, 2, 3).

This survey of related research reasonably led to the conjecture that children under such duress would experience considerable general anxiety and upon failure would suffer damaging blows to self-esteem. Their aggressive, hostile, or withdrawal reactions would then impede continuation of healthy interpersonal relations with their peers. A combined negative effect of these factors on achievement would be expected. Furthermore, findings of Grimes and Allinsmith in a survey of the literature and experimental inquiry into anxiety supported in part the reasonableness of this supposition (11, p. 486). The research reviewed by Myers (15) on self-esteem and sociometric status seemed to substantiate the potential correlation between these factors.

A pilot study conducted by the writer (13) in the spring of 1970, did in fact demonstrate a positive correlation between self-esteem, sociometric status, and achievement, and a negative correlation between anxiety and achievement. Both groups increased in anxiety level, though the experimental group increased less. The experimental group made a higher mean gain in achievement and in self-esteem. It appeared that the related literature and preliminary experimentation that had been completed were sufficient to justify the initiation of a properly designed experimental investigation within this framework.
It was thought that alteration or deletion of an entity so pervasive and tightly interlocked into the educational system as competitive grading would lead to a wide variety of implications for educational practice. A whole new orientation and emphasis would be required for the pupil, his parents, and the teacher.

Definition of Terms

For purposes of this study the following definitions were formulated:

1. **Adjustment.**—Adjustment was defined in terms of self-concept, sociometric status, and manifest anxiety as measured by the instruments used in this study.

2. **Self-concept.**—This term was utilized to indicate the way the child felt about himself as reflected by scores on the Piers-Harris Children's Self Concept Scale.

3. **Anxiety.**—The degree to which children generally feel anxious as determined by scores on the Manifest Anxiety Scale for Children constituted the meaning of this term.

4. **Sociometric status.**—Scores on the Standard Sociometric Scale were used as a measure of the individual's status in his peer relations.

5. **Competitive grading.**—This phrase was used to describe the extensively used system of reporting information regarding pupil progress in grade form. These reports are usually composed of numerical or letter marks derived from competitive norms and standards.
6. Non-competitive evaluations and reports.--These evaluations were made in terms of the pupil's performance as compared with his ability. They included the following: (1) a sheet for each subject area listing objectives, content, and major strengths and weaknesses; (2) papers marked with suggestions for correcting errors and statements emphasizing successes; and (3) parent-teacher conferences.

7. Suburban elementary school.--A sociological phenomenon in metropolitan areas has created many suburban neighborhoods which are predominantly middle class. A great deal of emphasis is normally placed on the importance of education by the community and subsequent parent pressure is applied on children to make good grades in school. This term inferred an elementary school in such a social setting.

8. "Highs" and "Lows".--These terms refer to approximately the upper and lower thirds of each group as determined by Primary Mental Abilities Tests.

Limitations

This study was limited to those students who entered the fourth grade classes of a suburban elementary school in north Texas, in September, 1970, and remained throughout the academic year. Primary grades were eliminated due to their lack of reading skills, and upper grades were not chosen due to their greater proximity to the middle school.
The limitation to one school was imposed because of the considerable involvement of parents in a study of this nature and the resulting ramifications for public relations. There was no reason to suppose that students in other suburban elementary schools would differ significantly from those included in this experiment.

The fact that only four teachers were involved in the study was considered a limitation. Two of the teachers had master's degrees and two had bachelor's degrees. One teacher from each of these two groups was randomly selected to participate in the experimental program while the other two served as controls.

Basic Assumptions

Some basic assumptions underlying the rationale for the design and implementation of this research were considered appurtenant to the nature of the human mind. Inquiry and curiosity are thought to result naturally in purposeful efforts to learn, to know, to analyze, to infer, and to generalize, if the child is provided with a proper balance of amenable freedom, complete acceptance, and appropriate limits. Learning carries its own reward. The unique cognitive powers of man make him a creature who does not need contrived motivators and continuous coercion to develop and apply thinking abilities. The need for a relatively constant inflow of stimulation and an unremitting necessity for organization and integration provide adequate motivation for
learning. Learnings in this sense can be meaningfully assimilated into the child’s existence, hence the inherent motive for their acquisition.

Within this context, competitive grades impose a threat of failure on most pupils while inherently assuring the failure of many.

It was assumed that the subjects responded honestly to the instruments utilized to measure self-concept, achievement, sociometric status, and anxiety. Since each subject was exposed to a number of teachers daily, it was assumed that this mitigated the effect of any single instructor.

**Instruments**

In order to test the hypotheses of this research, the following instruments and techniques were selected for use. Supporting data reflected their adequacy for the purposes of this study.

**Achievement Test**

The tests selected to ascertain achievement were Form W and Form X of the *Stanford Achievement Test Series*. These tests were highly rated for this purpose as these statements from *The Sixth Mental Measurements Yearbook* revealed:

Despite the many questions raised and suggestions offered, the reviewer would still rate the 1964 edition of the *Stanford Achievement Test* high among standardized achievement test batteries designed for use at the elementary level (5, p. 26).
It seems safe to conclude that, if local instructors endorse the content coverage, the Stanford Test will do as effective a job of measuring elementary school achievement as any standardized battery currently available (5, p. 27).

Self-Concept Scale

The Piers-Harris Children’s Self Concept Scale was utilized to measure self-concept. The author presented in the manual of directions (19) considerable research data to support the usefulness of this instrument.

This particular scale was selected because of its readability, simplicity of format eliminating confusion for the pupil, and availability of validity and reliability data. These data are reported in the section containing a more detailed description of the instruments.

Manifest Anxiety Scale

The test most extensively employed to measure anxiety for the selection of groups in experimental studies was the instrument developed by Taylor from the Minnesota Multiphasic Personality Inventory (8).

Castaneda, McCandless, and Palermo developed a children’s form of the Taylor scale and reported the normative data for fourth, fifth, and sixth graders. They found that one-week retest reliabilities averaged at about .90 (8, pp. 317-326).

Procedures for Collecting Data

Permission was obtained from the Superintendent of Schools to conduct this experiment. All subjects were told
that they were part of a special project authorized by the Superintendent of Schools to help find ways to make their school better. Parents were informed by letter. Inquiries to the principal were encouraged and an open meeting with parents was conducted.

Report cards containing A, B, C, D, and F were issued in this school each six-weeks. Current school district policies applied to all four groups except that in lieu of a report card an envelope containing work samples evaluated by the teacher, along with some comment about progress, was sent home to parents of pupils in the experimental group.

The four sections of fourth grade constituted those participating in the study. "Solomon's Four Group Design" as described by Campbell and Stanley (7, p. 24) was employed to gain greater control of both internal and external sources of invalidity. These groups were treated as depicted in Table I.

| TABLE I |
| SOLOMON'S FOUR GROUP DESIGN |

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<thead>
<tr>
<th>Group Name</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Treatment</th>
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<tr>
<td>1. Experimental I</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Experimental II</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Control I</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4. Control II</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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It should be noted that two groups will receive pre- and post-tests while the other two groups will receive posttests only. This procedure requires that one experimental and one control group not receive those pretests thought to create an interaction factor between tests and treatment. Of the four tests administered, self-concept and anxiety were thought to potentially have this effect since they are not a part of the standard testing program utilized in this school district.

Procedures for assigning students to the various sections were such that each section within the grade level was as equal as possible in terms of achievement levels, intelligence, and social maturity. Objective data for assigning students included SRA achievement composite percentile scores, SRA Primary Mental Abilities scores, and teacher evaluations.

The four tests were administered in the fall and again in the spring. Experimental and control groups were tested simultaneously. Instructions in the test manuals and guides were followed explicitly by certificated teachers. The experimenter supervised their administration.

Survey techniques were developed to collect data from parents and children relative to their feelings, reactions, and ideas about not receiving grades. These techniques and instruments were evaluated by a jury of professional educators and included questionnaires and interviews. Written completions of unfinished stories were analyzed for significant statements in relation to the two methods of reporting.
Procedure for Analysis of Data

Considerable differences in scores were expected within as well as between the two groups. An analysis of variance was considered necessary to determine the significance in these differences. The F-ratio was one of the most highly recommended statistical tests available for this purpose (12, p. 191). However, in view of the fact that a significant F ratio gave no indication of the direction of the difference nor provided any guidance for interpreting differences in mean gains, another test was required. Guilford (12, p. 197) considered Fisher's $t$ quite adequate for this purpose. Therefore, the null form of all hypotheses was tested utilizing these statistical procedures. The point of rejection was set not to exceed the .05 level of confidence.

The overall effect of the treatment was further analyzed to examine possible invalidating factors such as interaction of testing and treatment. This was accomplished by analysis of covariance as suggested by Campbell and Stanley (7) for the "Solomon's Four Group Design."

The procedures included coding the data for punch cards and automatic data processing at the North Texas State University Computing Center and presentation of the data in tables to facilitate interpretation. The computer output sheets were utilized in preparing the data for presentation.
CHAPTER BIBLIOGRAPHY


CHAPTER II

REVIEW OF THE LITERATURE

The empirical and scientific data pertinent to this research are presented in five sections: Grades and Some Major Concomitants, The Nature of Competition, Self-Perceptions In Relation To Grades and Academic Achievement, Anxiety Studies With Respect To Learning, and Peer Relationships and School Achievement. An attempt was made to report only those studies which had a direct and significant relationship to this investigation.

Grades and Some Major Concomitants

A fifty year history of research on marking systems was reported by Yauch (55), which revealed that only two major types of studies had been conducted on grading. Early studies dealt with correlates of grades with other measures of academic achievement and resulted in the discovery that teachers' grades were not a reliable quantitative entity. Later studies were predominantly status studies reporting current practices and did little more than furnish useful information about trends. Yauch concluded that, "after surveying the past fifty years of efforts to improve the accuracy and effectiveness of marking systems, I am personally forced to the conclusion that the problem is well-nigh insoluble" (55, p. 53).
Those who are familiar with Yauch's style of writing will recognize this as an emphatic way of identifying the difficulty in improving marking systems. The magnitude of this difficult problem with all its implications can be further seen in the National Education Association research summary completed in 1970 (41). In addition to reporting results of original surveys, the report is an in-depth look at over 100 research articles bearing on the topic. The report gives incisive analysis of such items as purposes, bases, evidences, and factors influencing marking, as well as the many methods and forms progress reports can take. It should be emphasized that the summary contains the most complete and comprehensive source currently available of information on the complex milieu of factors associated with marking and reporting pupil progress.

The literature abounds with articles written by educators who, for various reasons, would like to see grades abandoned. Hockstad (24), Mannello (34), Chanksy (12), Hausdorff and Farr (22), and McCowen and Bryan (35) reiterated the characteristic weaknesses of the traditional grade card (i.e., emphasis on subject matter, no reason offered for grades given, and adverse effects of low grades regularly reminding the child of failure). Kingston and Wash (28) reviewed forty-two reports on grades and reporting systems in order to suggest some advantageous marking procedures. Their suggestions (28, p. 39) ranged from
recommendations that attitude, conduct, and citizenship be separated from evaluative marks in content areas to asserting that a combination of devices should be used. The entire May, 1966, issue of the *National Elementary Principal* (28) was devoted to articles essentially critical of grading practices though little research data were reported about their potential harmful effects on children.

In a survey of a class of college students, Burke (8) found that most students felt that grades interfered with learning. The subsequent reasons they offered for this majority position were varied. Statements were made to the effect that teachers teach only things they can measure and that grades made pupils afraid to make mistakes, experiment, or even ask questions, for fear of appearing stupid. Scientific evidence supporting the students' claims is lacking, but it would seem that learning would be hindered if pupils are actually afraid to inquire for fear of reprisal, whether real or imagined.

The effects upon student achievement of written comments accompanying letter grades was investigated by Page (45). Seventy-four randomly selected teachers administered an objective test and then randomly assigned the 2,139 students to one of three treatment groups. One group received no comments, another received whatever comments the teacher felt like giving, while the third group received specified comments for similar letter grades. The next objective test
served as the criterion of comment effect. The F-ratios calculated indicated very significant differences. Students receiving comments did better on the criterion test than those receiving grades but no comments. The author noted particularly the positive effect of comments on failing students. Page concluded from these findings that comments on student papers have measurable positive effects on effort, attention, and attitude (45, pp. 180-181).

Murstein (39, p. 359) investigated the relationships between students' prediction of grades at the beginning of the term with the grade felt deserved just prior to the final examination and the grade received. It was discovered that few persons perceived themselves as poor students and that the low achievers were grossly unrealistic in their expectations. In view of these findings the role of the "grade" as a positive force in motivation was questioned.

One concern in changing the reporting system is that many teachers are not able to make the philosophic transition. Halliwell (21) investigated this in a system where an "individualized" program had been in operation in all elementary schools. Tests of correlation between IQ and satisfactory and unsatisfactory marks were calculated on 1,255 students. It was discovered that there was no real difference in the number of students receiving unsatisfactory marks even though an "individualized" program was supposed to be in operation. Baker and Doyle (2), on the
other hand, concluded from the results of a three year study that utilization of individual pupil data was having a desirable influence on actual practice. However, due to a more accurate assessment of pupil abilities, the number of unsatisfactory marks assigned to capable pupils increased. Halliwell (20, p. 329) later questioned the validity of correlation averages in the area of teacher grading. The fact remains, nevertheless, that careful attention should be given teacher orientation, understanding, and support, if a change in the evaluation system is to help accomplish educational objectives.

An attempt was made by Winthrope (54) to alter the college grading system so that when test scores were skewed, a procedure was used to assign a larger percentage of pupils acceptable grades. Experimental subjects in this case performed better than control groups whose grades were distributed according to a normal distribution curve. The author felt that his more flexible situation became a motivating factor in improving performance. The students seemed to think Winthrope's system was more fair and that they had a greater chance of obtaining an acceptable grade.

Bostrom, Vlandis, and Rosenbaum (6) attempted to demonstrate that a good grade would serve to increase the chances that the behavior preceding it would occur again. College students were administered attitude scales and a few weeks later were asked to write essays on topics related to items
in the attitude scale which were in opposition to their measured attitude. Grades were randomly assigned to the essays. It was predicted that those receiving an A for their essays would change more in the direction of their essay on a subsequent attitude measure than those receiving a D or no grades. Though significant results were obtained to support the hypothesis, it was pointed out that studies had also been conducted to show that verbalization of this type would produce an attitude change independent of consequences in many cases. The researchers indicated that the group which did not receive grades may have interpreted the fact of not getting a grade the same as a poor grade. Nevertheless, it may be concluded that the evaluative mark or comment has some effect on the pupil.

Mann, Odell, Parsons, and Walbert (33) compared formal and informal reporting systems in a first grade population of 116 pupils. The controls were given report cards at six-weeks intervals while the experimentals received informal reports (i.e., notes, letters, or phone calls every two weeks). The measured effects were in terms of achievement levels while adjustment factors were not considered for measurement. Arithmetic was the only area positively affected.

Working with four sections of college students, Hawk and DeRidder (23) tried to ascertain the difference in performance levels of students pre-graded on the basis of their previous...
averages with regularly graded students. The results indicated that students in the regularly graded group performed better. It was emphasized, however, that modification of class procedures involving group planning and individual participation might have changed this outcome.

An experiment providing for supportive comments on report cards conducted by Fanning (16) failed to reduce anxiety or increase reading achievement in below average readers in grades three through six. In any event, it should be noted that Fanning recommended further research in the belief that the problem area was significant.

The pertinent literature in this section seems to reflect the following observations:

1. The problem is difficult to investigate.
2. The literature abounds with reports identifying the need for improvement.
3. It is generally believed by educators that current grading practices interfere with learning.
4. Students apparently perceive grades in many different ways.
5. A good reporting system should probably include a variety of methods.

The Nature of Competition

Considerable criticism has been directed against a competitive basis for marking. The 1960 edition of the Encyclopedia of Educational Research (48, p. 788) cited
eight studies which identified some of the more unfavorable effects on the pupil, such as resulting antisocial attitudes and behaviors. Review of the last four volumes of this source (43, 44, 48, 52), covering forty years of research, revealed no studies supporting a competitive basis for marking.

Current grading practices, nevertheless, foster competitive exercises in learning situations providing good grades as rewards (41). Reports of significant studies on the nature of competition should help to place this practice in proper perspective.

One of the cardinal studies on the development and emergence of competition in young children was produced by Greenberg (19), who observed children aged two to seven while playing with blocks. There was a steady increase from one year to the next in the percentage of children who showed signs of competition but virtually no competition in the two to three year aged group. It can be said that at least 90 per cent of the six year olds have some understanding of the idea of excelling or doing better than rivals while competition generally makes its appearance at about the age of four (19, p. 248).

Mogar (36) conducted an experiment to determine the effect of competitional stress situation on performance. The subjects included 116 college students who performed a perceptual-motor task under standard nonstress conditions
and under conditions designed to arouse competition. Among several findings, the most relevant was that while the performance of some subjects was facilitated, the performance of others was impaired under competitional stress conditions.

In a similar investigation, Shaw (46) compared performance on a perceptual-motor task and memory-reasoning task under cooperative and competitive situations. It was concluded that cooperation and competition involve both motivational and procedural factors. In this case where procedural factors were controlled by making the tasks intrinsically interesting and the performance dependent upon the subjects own efforts, regardless whether he believed himself to be in a cooperative or in a competition situation, the cooperative situation was the most efficient on both tasks.

Authors of several outstanding books on child development and psychology, such as Mussen (40), Thompson (51), Jersild (27), and Garrison (18), all seem to imply that while provision should be made for competitive tendencies, competitive exercises designed to promote academic accomplishments in children may function to hinder more than facilitate learning. One of the problems as pointed out by Garrison is that the real values of learning are lost (18, p. 332).

Competition was demonstrated by Nelson, Gelfand, and Hartmann (42) to produce increases in aggression by those experiencing success as well as those experiencing failure.
This conclusion was based on experimental studies of ninety-six five and six year old children who observed either an aggressive or a non-aggressive adult model and then either succeeded or failed in competitive games or engaged in non-competitive play.

From the results of a study on academic achievement and competition, Coleman (13) concluded that competitive exercises in athletics usually produce higher levels of performance because the students are competing as a group with another outside group and not directly with each other. The better the performance of an individual, the more reward the total group receives. The more outstanding the academic performance of a student competing with classmates, the less esteem given to other group members since they all could not have top positions. Coleman further concluded that the structure of rewards including grades in most high schools impedes the process of education (13, p. 351).

Leuba (29) reported on experimental studies concerning rivalry in young children in which the children worked first singularly and then in pairs. Rivalry was not clearly established until the age of five at which time the quantitative output was greater for the children working in pairs. The children inserted pegs in a board, a relatively simple task. This study is certainly significant in terms of rivalry and competition generally, but the conclusions do not necessarily apply to learning situations, for as the authors pointed out,
the materials were already familiar and the task itself had been mastered. Levy (30) also observed rivalry in children of a primitive society though he emphasized that the culture in many respects determines the form.

It may be concluded that some degree of rivalry and competition is a natural phenomenon but that its usefulness in learning situations is probably limited. Furthermore, a certain amount of competitive experiences could be beneficial to the developing child though an excessive amount may be detrimental.

Self-Perceptions In Relation To Grades and Academic Achievement

Grades in a way become evaluative stimuli to the self-system, for they are in effect new information relevant to the self with which it must deal (5, p. 450). This is accomplished through a combination of assimilation, accommodation, and defense mechanisms. Mossman and Ziller (37, p. 364) and Ziller, Hagey, Smith, and Long (56) demonstrated that the self-system undergoes strain when new information regarding it is introduced. Within this framework, they also established that persons of high self-esteem were more consistent in their group behavior than persons of low self-esteem, a fact which could partially explain the dissonant behavior of low achievers. The effects of grades as evaluative comments about the self have wide implications for development of adequate self-systems in young children, particularly those
who from the beginning of their school experiences receive marks that reflect failure.

Experimental studies conducted on elementary through college age students furnish substantial evidence which indicates that self-concept is highly related to academic achievement. Caplin's (10) study of 180 intermediate grade children found a significant positive relationship between the two as have numerous others (5, 7, 26). Similar results were obtained by the writer (25) in the pilot study.

Brookover, Thomas, and Paterson (7, p. 278) demonstrated through experimental research on 1,050 seventh grade students a significant and positive correlation between self-concept and performance in the academic role. Bledsoe (5) demonstrated even more emphatically a high degree of relatedness between self-concept and academic achievement with elementary school children.

Wickersham (53) studied self-perceptions in relation to grades of third and sixth grade children. Data were collected on thirty-eight third and thirty-eight sixth grade children through semi-structured interviews. Of ten conclusions made from the data obtained, three seem to be of particular importance to this investigation: (1) third graders expressed greater intensity of feeling about grades than did sixth graders; (2) general self-perceptions and self-perception in relation to grades were positively related; and, (3) some children perceived pressure in regard to grades which could be detrimental to the self-view.
Anxiety Studies with Respect to Learning

In an investigation of school related anxiety and non-graded classroom organization, Chandler (11) observed that anxiety was reduced in the experimental group though not by a significant degree. There was concern, however, as to whether the principles of nongraded instruction had been adequately implemented. The term nongraded as used in Chandler's study referred to organizational structure and not to the reporting system. With respect to principles and philosophy, nongraded organization and nongraded reports probably have much in common. The type of structure as to organization as well as to classroom climate would seem to have some relationship to anxiety in young children. This view, however, was not supported by Evans (15), who also investigated the relationship of organizational patterns, such patterns meaning grouping of certain grade levels together. None the less, a trend of year-by-year decline in anxiety scores after about the eighth grade was noted. Research into developmental trends by Manley (32) corroborated this finding as well as the discovery that girls consistently score higher in anxiety than boys.

From the results of an experimental study about anxiety and learning, Mandler and Sarason (31) concluded the anxiety present in a testing situation is an important variable in test performance. On a digit symbol test the low anxiety group performed better. They pointed out that some optimum
level of anxiety served to increase performance in some students. For example, the low anxiety group would improve on the next trial if they were given a failure report regarding the previous trial, whereas the high anxiety group performed better if no reference were made to previous trials. Though these references are primarily to test anxiety, it would seem that anxiety created by other factors such as grades could have a similar influence on learning. Neither researcher, however, tendered any suggestions as to ways of determining when an optimum level of anxiety is operating. Results of research by Diamond (14) coincided with the finding that high levels of anxiety hinder performance.

Anxiety and fear of failure are related as reported by Stallings, Wolff, and Maehr (50) in a study of pass-fail grading option at the college level. They had predicted that students in the pass-fail program would have a higher test anxiety level than those choosing to continue in the graded program, but research results failed to confirm this hypothesis. The basis of the prediction was that many students with a high fear of failure would choose the pass-fail program. One possible reason that anxiety level was lower than expected is that participating in the pass-fail program could have reduced anxiety though the authors never mentioned this possibility. Many students with a high grade point average chose the pass-fail route, a fact which dispelled the notion that only poor students desired such an opportunity.
Soar (49, p. 279) suggested from original research that the teacher should be warm and supportive in teaching all objectives but that the anxiety level of the children should be taken into consideration in determining the degree of directness and indirectness of teaching style. Some highly anxious children may need more direct teaching approaches than a system of evaluation without grades provides, particularly in the child's initial participation in such a program. As discovered in the pilot study (25), teacher-pupil interaction had greater variety during the time in which no grades were given. Some children seemed to thrive on this more unstructured climate while others seemed to be more anxious.

Hughes (26) found no significant differences in anxiety level between high and low IQ groups of sixth grade children. Anxiety level of girls, however, was higher than boys with the difference approaching significance. This seems to be a relatively consistent finding and was also the case in the pilot study (25).

Bakare (1) designed a study to see if self-esteem could be improved and concomitantly improve academic performance and reduce general anxiety. One hundred and thirty first year student nurses were divided into experimental and control groups, and pre and post measures were administered. Experimental groups were given ego-involving instructions and success feedback. The experimental treatment
significantly lowered general anxiety while self-esteem was not improved except in cases where there was longer treatment. The author concluded that enhancement of self-esteem alone would not improve academic performance and that anxiety does not play a role independent of self-esteem (1, p. 4268A).

These findings further accentuate the rationale for collaterally investigating the effect of grades on self-esteem and general anxiety. Anxiety is a complex personality variable whose apparent function in learning situations should be given considerable importance.

**Peer Relationships and School Achievement**

Concluding from experimental research, Buswell (9, p. 51) distinguished that generally those who are succeeding in their school work will also be succeeding in their social relationships with peers. As further evidence of this phenomenon, an $r$ of .27 (significant at the .05 level) for correlation between achievement and sociometric status was obtained by the writer (25, p. 26) in a preliminary study indicating some positive relationship between the two. Muma's (38) research results also concurred with these findings.

Silberman (47) found no significant difference in sociometric status of low and high status fifth and sixth graders after a period of interaction between matched "Highs" and "Lows." While the low status students were
rated as showing less fighting and quarreling behavior, the helpers probably benefited as much as those who received help.

Blain and Ramirez (4, p. 954) found that elementary age children tend to rank high those of their peers with whom they have had the greatest opportunity to interact provided reinforcement is present during the interaction process. Paralleling this study was an inquiry by Flanders and Havumaki (17, p. 68), the results of which indicated that teacher-pupil interaction involving praise that is supportive and constructive is likely to increase pupil acceptance by peers. It may be concluded from these findings that classroom climate, types of communication and interaction that the teacher allows or provides may have some influence on peer relations. A situation without grades would seem to facilitate such a climate.

Barclay's (3) rationale for the use of sociometric data stems from its theoretical foundations in the nature of perception, learning theory, and achievement motivation. Assessment of the social climate of the classroom was considered by Barclay as the first step in suggesting effective means of enhancing learning.

Concluding Statement and Summary

The purpose of this chapter was to present empirical and scientific data pertinent to this investigation. Information regarding research on the various aspects of the
Some studies were such that they could have been considered under more than one category but were presented in the most related section. The research available in each separate area was voluminous, whereas studies encompassing more than two areas simultaneously were negligible. Only those reports with a directly significant relationship to the subject were reported.

This review of the related literature furnished empirical and scientific information sufficient to form some pertinent conclusions with considerable implications for a study. One of the major concomitants of grades was found to be the perjorative sense in which they were perceived by students. Paralleling this was the demand by pupils and parents for additional explanations and comments regarding their grades. Many educators were found who considered grades as being inadequate for various reasons, ranging from their lack of consistency to the pressures created on students.

Competitive grading was found to have virtually a complete lack of support from previous research. Some studies indicated that students evaluated under such a system appeared to feel in direct competition with each other to obtain good grades. Grades seemed to become the goal in place of the learning. No studies were located
which demonstrated that a competitive environment actually increased learning.

Several investigators reported a high correlation between self-concept and achievement. One major study supported the conclusion that grades were potentially detrimental to the self-view while others discovered that some students experience rather intense feelings about grades. Students who repeatedly received low or failing marks seemed to be the most adversely affected.

Students who were succeeding in their school work were found to be succeeding also in their social relationships with peers. Except for correlation studies, no reports were found which investigated the effect of grading procedures on sociometric status. The implications in the correlation studies, however, seemed to justify an investigation into the potential relationship of grades to peer associations.

Anxiety and fear of failure were demonstrated to be operative factors in some learning and testing situations. An optimum degree of anxiety was demonstrated to be helpful in some task-oriented experiments while anxiety in excess was found to be a hindrance to performance. In view of the pressure on pupils to gain good grades, anxiety was thought to be a result that should be investigated.

This survey of related research reasonably led to the conjecture that children under such duress would experience considerable general anxiety and upon failure would suffer
damaging blows to self-esteem. Their aggressive, hostile, or withdrawal reactions would then impede healthy interpersonal relations with their peers. A combined negative effect on achievement would then be expected. Within this framework, the research findings along with the pilot study results seemed to further accentuate the rationale for collaterally investigating the effect of grades on achievement, self-concept, sociometric status, and general anxiety. The subsequent chapter outlines the procedures followed in such an endeavor.
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CHAPTER III

PROCEDURES FOR OBTAINING AND TREATING THE DATA

This chapter presents in detail a description of the subjects, method of selecting teachers, the instruments employed, and procedures for collecting and processing the data. The presentation is divided into these four areas to facilitate clarification.

Description of the Subjects

Four regularly employed teachers and their 116 fourth grade students in a large elementary school in a north Texas suburb of 60,000 people were included in the study. The original composition of each class was based on data contained in the cumulative folders. Grade equivalent scores of the Botel Reading Inventory and the SRA Achievement Test Series along with SRA Primary Mental Ability IQ scores were given primary consideration. Pupils with a history of behavior problems were evenly distributed among the four classes. These procedures were used to help insure that the composition of each group was fairly identical in achievement, mental ability, and number of pupils with behavior problems.

Primary mental abilities tests were administered to the four groups again in the fall to further test the equivalence
of each group in terms of mental ability. Table II contains
the objective data from the cumulative folders as well as
results of the IQ test administered in the fall.

TABLE II
A COMPARISON OF MEAN IQ, READING, AND
ACHIEVEMENT SCORES BY CLASS

<table>
<thead>
<tr>
<th>Class Identification</th>
<th>Mean IQ Cumulative Folder</th>
<th>Mean IQ SRA Fall 1970</th>
<th>Mean Reading Sp. 1970</th>
<th>Mean Achievement Sp. 1969</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental I</td>
<td>108.67</td>
<td>102.04</td>
<td>5.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Experimental II</td>
<td>108.74</td>
<td>102.33</td>
<td>4.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Control I</td>
<td>107.68</td>
<td>103.14</td>
<td>4.9</td>
<td>3.2</td>
</tr>
<tr>
<td>Control II</td>
<td>107.34</td>
<td>100.63</td>
<td>4.8</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Inspection of this information should reveal no apparent
difference among the groups in reading level, achievement,
and mental ability scores. Students enrolling in September
on whom IQ data were not available were assigned on the basis
of performance level as reflected in reports from their
former schools. Nevertheless, there was less than one-tenth
of a point difference between group average IQ scores on the
test administered in the fall. Achievement tests, adminis-
tered in the fall as pretests, were examined to insure
equivalence in achievement level.
An attempt was made to keep each class as equal as possible in total enrollment as well as in number of boys and girls assigned to each class. No control was possible of those withdrawing. New entries were assigned to the class containing the least number of pupils. Data on only those pupils who enrolled September, 1970, and remained throughout the academic year were considered in the analysis of results. Enrollment information is presented in Table III.

TABLE III
A COMPARISON OF ENROLLMENTS, WITHDRAWALS AND NEW ENTRIES BY CLASS AND SEX

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>Experimental I</td>
<td>19</td>
<td>13</td>
<td>32</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Experimental II</td>
<td>18</td>
<td>14</td>
<td>32</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Control I</td>
<td>18</td>
<td>16</td>
<td>32</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Control II</td>
<td>18</td>
<td>15</td>
<td>33</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>
It may be observed that three of the classes maintained very stable memberships while only one class experienced any appreciable changes. This also altered slightly the balance of boys and girls in Experimental group II.

Description of the Teachers

The teachers already assigned to the four sections of fourth grade were utilized in this study. Table IV shows comparative descriptions of the teachers by group assignment.

<table>
<thead>
<tr>
<th>Group Assignment</th>
<th>Highest Degree</th>
<th>Years of Experience</th>
<th>Sex</th>
<th>Marital Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental I</td>
<td>M.Ed.</td>
<td>16</td>
<td>F</td>
<td>Divorced</td>
</tr>
<tr>
<td>Experimental II</td>
<td>B.S.</td>
<td>6</td>
<td>F</td>
<td>Married</td>
</tr>
<tr>
<td>Control I</td>
<td>M.Ed.</td>
<td>12</td>
<td>F</td>
<td>Single</td>
</tr>
<tr>
<td>Control II</td>
<td>B.S.</td>
<td>0</td>
<td>F</td>
<td>Single</td>
</tr>
</tbody>
</table>

Two of the teachers had master's degrees while two had bachelor's degrees, and though all four were certificated, one each of the master's and bachelor's degree teachers was assigned to the experimental and control groups. Following
the directions and tables suggested by Fox (7, p. 334), random selection procedures were utilized to further assign the teachers. The master's degree teachers were asked to select a number between one and 100 and a column number between one and ten. The teacher who selected a number which appeared in the chosen column was assigned to the experimental group. The procedure was repeated for the bachelor's degree teachers. The master's degree teacher groups were selected to take both pre- and post-tests while the bachelor's degree teacher groups were selected to take only posttests.

It should be noted that using a random selection procedure from such a small sample is probably a limitation on the study. If teachers with a predilection toward such an experiment, such as those with specialized skills and understandings, had been chosen, more significant findings could conceivably have resulted. This procedure was used, however, so that if significant results were obtained, they would have a wider range of possibilities for practical application. On the other hand, this limitation was mitigated to a small degree by assignment of the master's degree teachers to the two groups on which mean gains were compared.

Instruments Employed

In order to test the hypotheses of this research, the following tests and survey instruments were selected for use.
Supporting data reflected their adequacy for the purposes of this study.

**Achievement Test**

The tests selected to ascertain achievement were Form W and Form X of the Stanford Achievement Test Series. These tests were highly rated for this purpose as statements from *The Sixth Mental Measurements Yearbook* will reflect.

Despite the many questions raised and suggestions offered, the reviewer would still rate the 1964 edition of the Stanford Achievement Test high among standardized achievement test batteries designed for use at the elementary level (2, p. 26).

It seems safe to conclude that, if local instructors endorse the content coverage, the Stanford Test will do as effective a job of measuring elementary school achievement as any standardized battery currently available (2, p. 27).

Adequate reliability and validity data were available in the manual of directions (6). According to information in the manual the Stanford Achievement Test was standardized on 850,000 pupils drawn from 264 school systems in fifty states (6, p. 24). The norms were established by standard statistical procedures.

Reliability data were based on 1,000 cases from seventy-six school systems for each section of the test. Those scores (Split-half reliability coefficients corrected by the Spearman-Brown Prophecy Formula) range from .86 to .94 (6).

Validity was established through a careful analysis and examination "... of appropriate courses of study and
textbooks as a basis for determining the skills, knowledges, etc. to be measured" (6, p. 22).

**Self-Concept Scale**

The Piers-Harris Children's Self Concept Scale was utilized to measure self-concept. The author presented in the manual of directions (13) considerable research data to support the usefulness of this instrument. Problems associated with self-report inventories, such as ambiguity of items and response constraints, faking, social desirability and response styles, were examined. This particular scale was selected because of its readability, simplicity of format eliminating confusion for the pupil, and availability of validity and reliability data.

Reliability information was divided into two parts for discussion. Internal consistency was reported in terms of coefficients which ranged from .78 to .93 (13, p. 4). Stability was reported in terms of retests after four months with resulting coefficients of .72, .71, and .72 on three different groups. Wing, according to Piers, reported in an independent study a coefficient of .77 for 244 fifth graders (13, p. 4).

**Sociometric Test**

Following the standard form of sociometric questionnaires, each student was requested to list the name of three friends with whom he would like to play and the names
of three friends with whom he would like to work. Responses were tallied manually.

In an extensive review of the validity and reliability of sociometric data, Bonney concluded that such data were of significant importance in studying peer group relations and personality variables (1, p. 8). Byrd (3) conducted a study on a fourth grade class to determine validity and constancy of a sociometric test in which he administered a sociometric test, gave a life situation choice, and a retest. Coefficients (Rho) ranged from .76 ± .09 to .89 ± .04 for comparison of scores on all three situations (3, p. 180). He concluded, "The writer feels that the results of this study support the hypothesis that a sociometric test is valid insofar as the choice criterion has reality value for the subjects" (3, p. 181).

A total of fifty-three studies was examined by Mouton to ascertain the general reliability of sociometric judgments from which he concluded, "That reliable judgments can be made over a wide range of conditions has been demonstrated in a number of different ways" (12, p. 44).

**Manifest Anxiety Scale**

The test most extensively employed to measure anxiety for the selection of groups in experimental studies is the instrument developed by Taylor from the **Minnesota Multiphasic Personality Inventory**. Numerical data concerning the test
included an odd-even reliability of .92, and a test-retest reliability of (1,970 college students) .82.

Holtzman, Calvin, and Bitterman also reported, "They noted no appreciable sex differences, no practice effects, and no differences in scores attributable to variations in filler items" (8, p. 853).

Winne has constructed a similar scale independently of Taylor which has been compared to Taylor's and found to be strongly correlated. "... the corrected coefficient of .86 is a conservative estimate of the 'true' relationship between Winne and Taylor scores" (8, p. 854). Holtzman, Calvin, and Bitterman concluded their investigation of the scale by saying, "We now have, therefore, direct evidence of the validity of criterion groups used in the recent experiments on the relation of anxiety to learning--evidence which up to now has been lacking" (8, p. 854).

Sampson and Bindra also concluded from the results of an experimental study, "Inasmuch as the Taylor scale differentiates between normals (mean = 16) and neurotics (mean = 26), it may appear to be a reasonably valid indicator of anxiety" (14, p. 257).

Castaneda, McCandless, and Palermo developed a children's form of the Taylor scale and reported the normative data for fourth, fifth, and sixth graders. They found that one-week retest reliabilities averaged at about .90 (5, pp. 317-320).
Horowitz (10), Lunneborg (11), Sampson and Bindra (14), and Trent (15) all reported satisfactory results from their independently conducted experimental studies using the Manifest Anxiety Scale for Children. It appeared to be the most respected instrument available to measure anxiety.

**SRA Primary Mental Abilities Test**

The instrument used to measure intelligence was the 1963 edition of the Primary Mental Abilities Test published by Science Research Associates. The PMA was selected for use in this study for three reasons: (1) the school district had used this test for several years and suggested it be utilized in this study; (2) the original groups were formed using a previously administered PMA score as one of the criteria; and, (3) the review offered by testing authority, O. K. Buros (2, p. 1048). Though the reviewer was critical of certain aspects of the test, use of total test scores seemed acceptable (2, p. 1050). The validity data were questionable particularly for subtests, while reliability coefficients from .84 to .94 were considered satisfactory (2, p. 1049).

**Survey Instruments**

Three survey instruments were developed and employed in an attempt to determine feelings of students and parents. They were evaluated by a jury of professional educators which was composed of a university education professor, an
elementary principal, and a school mental health specialist. These instruments were utilized in the pilot study (9) but were revised, incorporating major recommendations of the panel.

A thirteen item questionnaire was developed for the purpose of ascertaining certain aspects of student reactions to a learning situation in which no grades were given. Stories with incomplete endings were given to students to allow them a means of expressing their feelings in a more unstructured manner. An eleven item survey was designed to elicit opinions and suggestions from parents.

Procedures for Collecting and Processing the Data

Permission was obtained from the Superintendent of Schools to conduct this experiment. The subjects were told in September, 1970, that they were part of a special project to help find ways to make their school better. Parents were informed by letter announcing the project and encouraging them to attend a discussion meeting. After the meeting a follow-up letter and an information sheet containing questions and answers was sent home.

Teachers were made aware in the spring of 1970 that the study would be conducted in the fall. An orientation session was held with them in August, at which time the experimental group teachers were selected. The teacher of the pilot project met with them at a later date to discuss procedures and potential problems.
The tests previously described were administered in the fall and/or spring according to the experimental design. However, the intelligence tests were given only in the fall since their purpose was to further insure the equivalence of the groups in mental ability and provide basic data for high and low ability comparisons, whereas the surveys and interviews were conducted only at the conclusion of the study. The achievement series and the intelligence tests were machine scored while all other tests and instruments were hand scored. Each group was given the same test simultaneously under the direction of its teacher and supervision of the experimenter.

Significance of differences in mean gains was tested by F-ratios and Fisher's t's. The null form of all twelve hypotheses was formulated and tested in this manner using the .05 level of confidence as the criterion point for rejection.

Analysis of covariance was utilized to further ascertain the overall effect of the treatment in terms of potentially invalidating factors such as interaction of testing and treatment. This procedure was recommended by Campbell and Stanley for treating data collected using "Solomon's Four Group Design" (4).

The data were coded for punch cards and computer processing at the North Texas State University Computing Center. Detailed instructions were written to help assure that the
correct programs were used in calculating the selected statistics. Computer output sheets were utilized in preparing the obtained statistics for analysis and presentation.

Results of the surveys were tallied and percentages calculated to facilitate analysis. The unfinished stories and interviews were examined to identify patterns in expressed feelings and other significant reactions.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

The effect of two methods of reporting pupil progress on adjustment and achievement of fourth grade students in a suburban elementary school was analyzed. An original population of 116 students was reduced to 110 due to students withdrawing from school and due to illness during the testing periods. Quantitative data compared included measures of standardized achievement, self-concept, sociometric status, and anxiety. Other information examined was comprised of unfinished stories, taped interviews, student surveys, and parent evaluations.

Through critical analysis of the collected data, the tenability of each hypothesis as stated in Chapter I was decided. The twelve research hypotheses were stated in the null form for testing and the 5 per cent level of confidence was used to determine rejection.

Statistical procedures employed for hypothesis number one involved analysis of variance of mean gains, analysis of covariance, two-way analysis of variance of posttests, and interpretation of resulting F and t scores. Hypotheses three through twelve were tested utilizing one-way analysis of variance. The unfinished stories and taped interviews were discussed using representative samples as a basis for
demonstrating patterns and selected information identified. Percentages of positive and negative responses to the student and parent surveys were presented in table form and discussed accordingly.

The statistical data are summarized according to each hypothesis. The unfinished story, taped interview, and survey data are presented following the discussion regarding the hypotheses.

Hypothesis One

Research hypothesis one was restated to read: There will be no significant difference in the mean gains of the experimental and control groups on achievement, self-concept, sociometric, and anxiety scores.

All four classes took both pre- and post-achievement tests. Analysis of variance results are presented in Table V.

TABLE V

ANALYSIS OF VARIANCE FOR ACHIEVEMENT MEAN GAINS FOR EXPERIMENTAL AND CONTROL GROUPS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>0.1339</td>
<td>1</td>
<td>.1339</td>
<td>1.007</td>
<td>1.00</td>
</tr>
<tr>
<td>Within</td>
<td>14.3592</td>
<td>108</td>
<td>.1330</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14.4931</td>
<td>109</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 3.94$
To be significant with 1 and 108 degrees of freedom associated with the numerator and denominator respectively, \( F \) would have to be 3.94. Although an \( F \) of 1.00 proved non-significant, the \( t \) test was applied to determine possible trends. The \( t \) was positive, a result which indicated that the experimental group achieved more but that the difference was not large enough to have occurred beyond chance. Therefore, the null hypothesis was retained. In view of the commonly held belief that children will not work if grades are removed, some importance could, nevertheless, be attached to this finding.

The self-concept measure was given to only one of the experimental groups in order to test for interaction of treatment and testing. Significance of difference of mean gains between one experimental and one control group was calculated. Table VI contains the data from the analysis of variance of pre- and post-self-concept scores.

### TABLE VI

**ANALYSIS OF VARIANCE FOR SELF-CONCEPT MEAN GAINS FOR EXPERIMENTAL AND CONTROL GROUPS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>( F )</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>6.2241</td>
<td>1</td>
<td>6.2241</td>
<td>.0477</td>
<td>.2184</td>
</tr>
<tr>
<td>Within</td>
<td>7308.6875</td>
<td>56</td>
<td>130.5123</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7314.9102</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant \( F = 4.02 \)
The obtained F-score of .047 is too small for significance, for with 1 and 56 degrees of freedom, an F of 4.02 is required. The \( t \) was employed to give direction but it too was not significant; these statistics required retention of the null hypothesis.

Sociometric data were gathered on all four groups rather than just two since administration of sociometric scales was a standard practice in this school. Results of analysis of variance of sociometric scores are illustrated in Table VII.

**TABLE VII**

ANALYSIS OF VARIANCE FOR SOCIOMETRIC MEAN GAINS FOR EXPERIMENTAL AND CONTROL GROUPS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.2106</td>
<td>1</td>
<td>.2106</td>
<td>.0085</td>
<td>-.0923</td>
</tr>
<tr>
<td>Within</td>
<td>2668.1892</td>
<td>108</td>
<td>24.7054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2668.3999</td>
<td>109</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant \( F = 3.94 \)

An F-score of .0085 and a \( t \) of -.0923 resulted from this analysis definitely revealing that there were no significant differences in sociometric status. This required that the sociometric portion of hypothesis one be retained.

Twenty-nine experimental and twenty-nine controls were administered the anxiety test on which analysis of variance
of mean gains was computed. Table VIII illustrates the findings.

TABLE VIII

ANALYSIS OF VARIANCE FOR ANXIETY MEAN GAINS
FOR EXPERIMENTAL AND CONTROL GROUPS
FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>48.4310</td>
<td>1</td>
<td>48.4310</td>
<td>1.6601</td>
<td>-1.2884</td>
</tr>
<tr>
<td>Within</td>
<td>1633.7241</td>
<td>56</td>
<td>29.1736</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1682.1550</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.02

The F-score of 1.66 was too small for significance, 4.02 being necessary. The t of -1.288 also indicated no significant difference. Inspection of the anxiety means revealed that, actually, both groups decreased in anxiety. This phase of hypothesis one was therefore retained.

No significant differences were obtained for any one of the four parts of hypothesis one, requiring that the null form be retained. Nevertheless, analysis of covariance was also calculated, resulting even more conclusively in no significant differences. A two-way analysis of variance computed to test interaction effects of testing and treatment also resulted in no significant findings. Had the results of
the one-way analysis of variance been more positive, results of the other two statistical tests would have been more germane to the study and, hence, complete results would have been reported.

Hypothesis Two

The null form of the research hypothesis was stated as follows: There will be no significant difference in the mean gains of experimental group girls and experimental group boys on achievement, self-concept, sociometric, and anxiety tests.

Computations regarding the achievement tests were conducted on fifty-one students. Table IX depicts the analysis of variance results.

<table>
<thead>
<tr>
<th>TABLE IX</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALYSIS OF VARIANCE FOR ACHIEVEMENT MEAN GAINS FOR EXPERIMENTAL BOYS AND EXPERIMENTAL GIRLS FOR THE PRE- AND POST-TESTS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.2135</td>
<td>1</td>
<td>.2135</td>
<td>1.7835</td>
<td>-1.3355</td>
</tr>
<tr>
<td>Within</td>
<td>5.8662</td>
<td>49</td>
<td>.1197</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6.0797</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.03

No significant difference was indicated by the F-ratio, since 4.03 was required and only 1.78 was obtained. The
negative $t$ indicated that the girls achieved more though not to a significant degree. The null hypothesis was retained, and in effect confirmed the research hypothesis.

Information pertaining to self-concept calculations is presented in Table X. Twenty-nine students were involved.

**TABLE X**

ANALYSIS OF VARIANCE FOR SELF-CONCEPT MEAN GAINS FOR EXPERIMENTAL BOYS AND EXPERIMENTAL GIRLS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>$F$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>13.2522</td>
<td>1</td>
<td>13.2522</td>
<td>.1043</td>
<td>.3229</td>
</tr>
<tr>
<td>Within</td>
<td>3432.1960</td>
<td>27</td>
<td>127.1184</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3445.4482</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.21$

With 1 and 27 degrees of freedom, an $F$-ratio of 4.21 was necessary for significance. The obtained $F$ of .1043 lacked a great deal in attaining the required size. In reverse to the achievement results, the boys made greater gains in self-concept, though not significantly greater, as the $t$ of .3229 revealed.

Analysis of variance of sociometric mean gains was computed to ascertain significance of difference. Pertinent data are presented in Table XI.
### TABLE XI

**ANALYSIS OF VARIANCE FOR SOCIOMETRIC MEAN GAINS FOR EXPERIMENTAL BOYS AND EXPERIMENTAL GIRLS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.2489</td>
<td>1</td>
<td>.2489</td>
<td>.0125</td>
<td>.1119</td>
</tr>
<tr>
<td>Within</td>
<td>973.3979</td>
<td>49</td>
<td>19.8652</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>973.6470</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.03$

A direction in favor of the boys was established by the $t$ of .1119. Its size and the small $F$, however, revealed that the difference was not significant.

Mean gains in anxiety between experimental boys and experimental girls were also analyzed for significance. Table XII presents analysis of variance results.

### TABLE XII

**ANALYSIS OF VARIANCE FOR ANXIETY MEAN GAINS FOR EXPERIMENTAL BOYS AND EXPERIMENTAL GIRLS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>18.5194</td>
<td>1</td>
<td>18.5194</td>
<td>.5628</td>
<td>.7502</td>
</tr>
<tr>
<td>Within</td>
<td>888.4460</td>
<td>27</td>
<td>32.9054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>906.9653</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.21$
The F was not significant. Nevertheless, a t test was run to determine if trends existed. Examination of mean gains revealed that both groups decreased in anxiety and that the girls decreased more than the boys. One should keep in mind, however, that the t of .7502 does not approach significance.

In view of the statistical analysis of the four phases of hypothesis two, it must be stated that no significant differences were obtained and that retention of the null hypothesis was required. On the other hand, this finding supported the prediction of the research hypothesis. Directions were indicated, however, in favor of the boys for self-concept and sociometric status, and in favor of the girls for achievement and anxiety level.

Hypothesis Three

The research hypothesis was restated in the null to read: There will be no significant difference in mean gains of experimental group girls and control group girls on achievement, self-concept and sociometric tests.

Achievement test data were calculated on fifty pupils. There was no significant gain at the 5 per cent level. Though the t was not sufficient either, a direction in favor of the experimental girls was signified. Presented in Table XIII is the analysis of variance results.
TABLE XIII
ANALYSIS OF VARIANCE FOR ACHIEVEMENT MEAN GAINS
FOR EXPERIMENTAL GIRLS AND CONTROL GIRLS
FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.2725</td>
<td>1</td>
<td>.2725</td>
<td>1.7706</td>
<td>1.33</td>
</tr>
<tr>
<td>Within</td>
<td>7.3882</td>
<td>48</td>
<td>.1539</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.6608</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.04

Though the F of 1.77 was one of the larger F's obtained in the study, as reflected in the above table, it was too small for significance. The null hypothesis was retained.

Analysis of self-concept mean gains did not attain significance. Data are shown in Table XIV.

TABLE XIV
ANALYSIS OF VARIANCE FOR SELF-CONCEPT MEAN GAINS
FOR EXPERIMENTAL GIRLS AND CONTROL GIRLS
FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.4103</td>
<td>1</td>
<td>.4103</td>
<td>.002</td>
<td>.9139</td>
</tr>
<tr>
<td>Within</td>
<td>4123.5859</td>
<td>23</td>
<td>179.2863</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4124.0000</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.26
The obtained F-score of .002 was far too small to be substantive. The direction implied in the $t$ favored the experimentals, but its size excluded any real inference.

In considering the sociometric results, no significant F-ratio was produced. Exhibited in Table XV is the pertinent analysis of variance statistics.

**TABLE XV**

**ANALYSIS OF VARIANCE FOR SOCIOMETRIC MEAN GAINS FOR EXPERIMENTAL GIRLS AND CONTROL GIRLS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>$F$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>8.5778</td>
<td>1</td>
<td>8.5778</td>
<td>.3816</td>
<td>-.6177</td>
</tr>
<tr>
<td>Within</td>
<td>1079.0420</td>
<td>48</td>
<td>22.4800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1087.6199</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.04

An F-ratio of 4.04 was required for confidence in the measured difference, a figure which proved to be much larger than the obtained F. The $t$, though not significant, pointed to the controls as gaining more in sociometric status.

The non-significant statistics required that all three phases of null hypothesis three be retained. It should be noted, however, that predicted directions were indicated in achievement and self-concept.
Hypothesis Four

The research hypothesis stated in the form for testing read: There will be no significant difference in mean gains of experimental group girls and control group girls on the anxiety measure. Analysis of variance of mean gains was calculated, the results of which are featured in Table XVI.

**TABLE XVI**

ANALYSIS OF VARIANCE FOR ANXIETY MEAN GAINS FOR EXPERIMENTAL GIRLS AND CONTROL GIRLS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>9.5510</td>
<td>1</td>
<td>9.5510</td>
<td>.3771</td>
<td>.6140</td>
</tr>
<tr>
<td>Within</td>
<td>582.6089</td>
<td>23</td>
<td>25.3308</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>592.1599</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.26$

The $F$-ratio of .377 did not achieve a 4.26, the significant value for $F$ with 1 and 23 degrees of freedom at the 5 per cent level. The null hypothesis was therefore sustained.

Hypothesis Five

Hypothesis five dealt with comparisons between experimental girls and control boys. The null form of this hypothesis read: There will be significant difference in
the mean gains of experimental group girls and control group boys on achievement, self-concept, and sociometric tests.

Analysis of variance of achievement scores regarding this hypothesis is featured in Table XVII. Computations were made on fifty-three pupils.

**TABLE XVII**

**ANALYSIS OF VARIANCE FOR ACHIEVEMENT MEAN GAINS FOR EXPERIMENTAL GIRLS AND CONTROL BOYS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.2530</td>
<td>1</td>
<td>.2530</td>
<td>1.88</td>
<td>1.37</td>
</tr>
<tr>
<td>Within</td>
<td>6.8632</td>
<td>51</td>
<td>.1346</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.1163</td>
<td>52</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.03

No trend of particular weight is apparent in Table XVII. The lack of a significant F-value resulted in rejection of the research hypothesis for this phase.

Analysis of variance was computed on the mean gain self-concept scores of twenty-eight pupils. The minute size of the F-ratio obtained emphatically prohibited attaching any significance to the difference in mean gains. The t was negative, indicating that the control group made the higher gain, though not sufficiently higher. Table XVIII portrays pertinent statistical data.
TABLE XVIII
ANALYSIS OF VARIANCE FOR SELF-CONCEPT MEAN GAINS FOR EXPERIMENTAL GIRLS AND CONTROL BOYS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>1.5744</td>
<td>1</td>
<td>1.5744</td>
<td>.01</td>
<td>-.1002</td>
</tr>
<tr>
<td>Within</td>
<td>4077.1040</td>
<td>26</td>
<td>156.8117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4078.6785</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.21

As reflected in the table above, the resulting statistics required that the null hypothesis be retained. Sociometric data were analyzed for differences in mean gains on fifty-three pupils. Delineated in Table XIX are the statistical results.

TABLE XIX
ANALYSIS OF VARIANCE FOR SOCIOMETRIC MEAN GAINS FOR EXPERIMENTAL GIRLS AND CONTROL BOYS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2.4239</td>
<td>1</td>
<td>2.4239</td>
<td>.0951</td>
<td>.3083</td>
</tr>
<tr>
<td>Within</td>
<td>1300.5571</td>
<td>51</td>
<td>25.5011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1302.9810</td>
<td>52</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.03
No difference of a tangible nature was obtained. The resulting F of .0951 was simply too small in view of the fact that 4.03 was required.

The rejection of the research hypothesis of significant difference favoring the experimental group was necessitated by the non-significance of the F-value on all three phases of hypothesis five. Directions were indicated as expected only in achievement and sociometric status.

Hypothesis Six

Hypothesis six was restated to read in the null form:

There will be no significant difference in mean gains of experimental group girls and control group boys on the anxiety tests. Quantitative analytical data relative to anxiety are displayed in Table XX.

**TABLE XX**

**ANALYSIS OF VARIANCE FOR ANXIETY MEAN GAINS FOR EXPERIMENTAL GIRLS AND CONTROL BOYS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2.3333</td>
<td>1</td>
<td>2.3333</td>
<td>.0899</td>
<td>.2998</td>
</tr>
<tr>
<td>Within</td>
<td>674.9165</td>
<td>26</td>
<td>25.9583</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>677.2500</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.21
As in the previous three comparisons of these groups, no substantive difference resulted. Direction was in favor of the control group, which decreased more in anxiety, though not significantly more as the \( t \) of .2998 revealed. The null hypothesis was therefore retained.

Hypothesis Seven

Stated in the null form this hypothesis read: There will be no significant difference in mean gains of experimental group boys and control group boys on the achievement, self-concept, and sociometric tests.

Achievement scores were analyzed on the sixty pupils being compared. Disclosed in Table XXI are the computed statistics.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.0014</td>
<td>1</td>
<td>.0014</td>
<td>.0118</td>
<td>.1086</td>
</tr>
<tr>
<td>Within</td>
<td>6.7564</td>
<td>58</td>
<td>.1165</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6.7578</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant \( F = 4.00 \)
With 1 and 59 degrees of freedom, an F-ratio of 4.00 was required for significance at the 5 per cent level of confidence. The obtained F of .0118 fell short of this requirement. Though not significant, direction in favor of the experimental group was indicated by the t of .1086.

Reported in Table XXII are the results of analysis of variance of self-concept scores on the thirty-three pupils compared. An F of 4.15 was required for significance.

**TABLE XXII**

ANALYSIS OF VARIANCE FOR SELF-CONCEPT MEAN GAINS FOR EXPERIMENTAL BOYS AND CONTROL BOYS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>6.5785</td>
<td>1</td>
<td>6.5785</td>
<td>.0644</td>
<td>.2537</td>
</tr>
<tr>
<td>Within</td>
<td>3167.9668</td>
<td>31</td>
<td>102.1925</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3174.5454</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.15

As evidenced by the non-significant F-ratio, substantive differences were not obtained. This phase of the null hypothesis was therefore retained.

Sociometric differences were studied utilizing analysis of variance of mean gains of the sixty pupils qualifying for these two particular comparisons. Manifested in Table XXIII are the resulting statistical data.
TABLE XXIII

ANALYSIS OF VARIANCE FOR SOCIOMETRIC MEAN GAINS
FOR EXPERIMENTAL BOYS AND CONTROL BOYS
FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>4.9553</td>
<td>1</td>
<td>4.9553</td>
<td>.1836</td>
<td>.4285</td>
</tr>
<tr>
<td>Within</td>
<td>1565.2280</td>
<td>58</td>
<td>26.9867</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1570.1831</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.00

Due to the small size of the F-value procured, retention of the null hypothesis was demanded. This result followed the pattern of the three previous phases of hypothesis seven. It should be noted, however, that expected directions were achieved on all three measures.

Hypothesis Eight

Hypothesis eight was stated in null form for testing as follows: There will be no significant difference in mean gains of experimental group boys and control group boys on the anxiety measure.

A total of thirty-three pupils qualified for inclusion in this comparison. Analysis of variance results relating to anxiety scores is exhibited in Table XXIV.
TABLE XXIV

ANALYSIS OF VARIANCE FOR ANXIETY MEAN GAINS FOR EXPERIMENTAL BOYS AND CONTROL BOYS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>40.1069</td>
<td>1</td>
<td>40.1069</td>
<td>1.207</td>
<td>1.098</td>
</tr>
<tr>
<td>Within</td>
<td>1029.5293</td>
<td>31</td>
<td>33.2106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1069.6362</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.15

As reflected by the non-significant F-ratio of 1.20, experimental boys did not attain a lower mean gain in anxiety as expected. The null hypothesis was therefore retained.

Hypothesis Nine

The research hypothesis was stated in the null as:
There will be no significant difference in mean gains of experimental group low IQ's and control group low IQ's on achievement, self-concept, and sociometric tests.

Analysis of variance was computed on the mean gain achievement scores of thirty-six students. The difference between the gains was not significant as the F of 1.1289 indicates, since an F of 4.13 was required. The direction is indicated by the t to show that the experimental low IQ's achieved more but not beyond chance expectation. The pertinent data appear in Table XXV.


### TABLE XXV

**ANALYSIS OF VARIANCE FOR ACHIEVEMENT MEAN GAINS FOR EXPERIMENTAL LOW IQ AND CONTROL LOW IQ GROUPS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.1405</td>
<td>1</td>
<td>.1405</td>
<td>1.1289</td>
<td>1.0625</td>
</tr>
<tr>
<td>Within</td>
<td>4.2302</td>
<td>34</td>
<td>.1244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4.3707</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.13$

The data presented in Table XXV required that the achievement phase relating to the null hypothesis be retained. The research hypothesis was therefore rejected.

Findings from analysis of variance of self-concept scores were not significant. Presented in Table XXVI are the relative data.

### TABLE XXVI

**ANALYSIS OF VARIANCE FOR SELF-CONCEPT MEAN GAINS FOR EXPERIMENTAL LOW IQ AND CONTROL LOW IQ GROUPS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>78.0891</td>
<td>1</td>
<td>78.0891</td>
<td>.8095</td>
<td>-.8997</td>
</tr>
<tr>
<td>Within</td>
<td>1446.9695</td>
<td>15</td>
<td>96.4646</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1525.0586</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.54$
The F-ratio was not significant with 1 and 15 degrees of freedom at the 5 per cent level as an F of 4.54 was required. The $t$ applied to show direction was negative, but not significant.

Sociometric data were collected on all four groups. Illustrated in Table XXVII is the analysis of variance of sociometric mean gains.

**TABLE XXVII**

ANALYSIS OF VARIANCE FOR SOCIOMETRIC MEAN GAINS FOR EXPERIMENTAL LOW IQ AND CONTROL LOW IQ GROUPS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>$F$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>12.5000</td>
<td>1</td>
<td>12.5000</td>
<td>.4985</td>
<td>-.7061</td>
</tr>
<tr>
<td>Within</td>
<td>852.5000</td>
<td>34</td>
<td>25.0735</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>865.0000</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.13$

The F-ratio of .4985 did not achieve a 4.13, the significant value for F at the 5 per cent level. Findings from the $t$ of -.7061 did not approach significance though, indicating that the control group mean gain was greater.

None of the F-ratios calculated regarding mean gains between experimental low IQ's and control low IQ's approached significance. This necessitated retention of all three phases of hypothesis nine. The research hypotheses were
therefore rejected. It should be noted, however, that achievement was the only phase in which the hypothesized direction was obtained.

Hypothesis Ten

The null form of hypothesis ten was stated to read: There will be no significant difference in mean gains of experimental group low IQ's and control group low IQ's on the anxiety measure. Information regarding the anxiety comparison is included in Table XXVIII.

TABLE XXVIII

ANALYSIS OF VARIANCE FOR ANXIETY MEAN GAINS FOR EXPERIMENTAL LOW IQ AND CONTROL LOW IQ GROUPS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>86.2041</td>
<td>1</td>
<td>86.2041</td>
<td>3.4801</td>
<td>-1.865</td>
</tr>
<tr>
<td>Within</td>
<td>371.5606</td>
<td>15</td>
<td>24.7707</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>457.7646</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.54

An F-ratio of 4.54 must be obtained to be significant. The resulting 3.48 was not significant and neither was the t of -1.865. Hypothesis ten was therefore retained and the research hypothesis rejected.
Hypothesis Eleven

A null form of hypothesis eleven was formulated to read: There will be no significant difference in mean gains of experimental group high IQ's and control group high IQ's on the achievement, self-concept, and sociometric tests.

Results of analysis of variance of achievement mean gain scores on a total of thirty pupils are contained in Table XXIX. An F of 4.20 was required for significance.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>.2797</td>
<td>1</td>
<td>.2797</td>
<td>1.493</td>
<td>1.222</td>
</tr>
<tr>
<td>Within</td>
<td>5.2437</td>
<td>28</td>
<td>.1873</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.5234</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.20

Though there was no significant gain at the 5 per cent level as evidenced by the F-ratio of 1.493, the t of 1.222 indicated the experimental high IQ's achieved more. Nevertheless, the null hypothesis must be retained.

Self-concept mean gains were analyzed using analysis of variance. Depicted in Table XXX are the results.
TABLE XXX

ANALYSIS OF VARIANCE FOR SELF-CONCEPT MEAN GAINS FOR EXPERIMENTAL HIGH IQ AND CONTROL HIGH IQ GROUPS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>44.1000</td>
<td>1</td>
<td>44.1000</td>
<td>.4175</td>
<td>.6462</td>
</tr>
<tr>
<td>Within</td>
<td>1689.8999</td>
<td>16</td>
<td>105.6187</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1734.0000</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.49

The obtained F of .4175 fell considerably short of the 4.49 required. The t of .6462 confirmed the research hypothesis direction but did not attain significant proportions.

Analysis of variance was computed on the sociometric mean gains. Results are featured in Table XXXI.

TABLE XXXI

ANALYSIS OF VARIANCE FOR SOCIOMETRIC MEAN GAINS FOR EXPERIMENTAL HIGH IQ AND CONTROL HIGH IQ GROUPS FOR THE PRE- AND POST-TESTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2.0647</td>
<td>1</td>
<td>2.0647</td>
<td>.0743</td>
<td>-.2726</td>
</tr>
<tr>
<td>Within</td>
<td>778.2351</td>
<td>28</td>
<td>27.7941</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>780.2998</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant F = 4.20
The rejection of the research hypothesis of significant difference favoring the experimental group was necessitated by the non-significance of the $F$-value of .0743. The null hypothesis was therefore retained.

Hypothesis Twelve

Research hypothesis twelve was restated in the null form to read: There will be no significant difference in mean gains of experimental group high IQ's and control group high IQ's on the anxiety test. Cited in Table XXXII are the resulting statistics from analysis of variance.

**TABLE XXXII**

**ANALYSIS OF VARIANCE FOR ANXIETY MEAN GAINS FOR EXPERIMENTAL HIGH IQ AND CONTROL HIGH IQ GROUPS FOR THE PRE- AND POST-TESTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Variance Estimate</th>
<th>$F$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>8.1000</td>
<td>1</td>
<td>8.1000</td>
<td>.3307</td>
<td>.5751</td>
</tr>
<tr>
<td>Within</td>
<td>391.8999</td>
<td>16</td>
<td>24.4937</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>400.0000</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant $F = 4.49$

Data from analysis of mean gains produced no significant $F$-ratio. As evidenced by the $t$ of .5751, the experimental group went down in anxiety level less than did the control group. Null hypothesis twelve was therefore retained.
Review of the analysis of data relative to the twelve hypotheses tested in this research revealed that no statistically significant differences were obtained. Inspection of the data recorded in the tables in terms of the research hypotheses proposed in Chapter I, however, indicated that of the twenty-eight directions predicted, seventeen were confirmed. The most accurate predictions regarding directions related to achievement. Predictions favoring the experimentals were confirmed, as to direction only, in all seven cases. Self-concept was next with a five to two ratio in favor of the experimentals. Expected directions regarding anxiety were the least accurate with a three to five ratio favoring the controls. One should be reminded, however, that the directions were not beyond chance occurrence. It appears reasonable, nevertheless, to attach some importance to the obtained directions regarding achievement in view of the commonly held view that without grades children will not perform academically in a satisfactory manner.

The remaining portions of the presentation and analysis of data should be interpreted in view of the statistical findings reported in this section on the hypotheses. The data yet to be presented include the results of the unfinished stories, taped interviews, student surveys, and parent evaluations.
Unfinished Stories

Four unfinished or incomplete stories were developed for use in this study in order to determine from this perspective how the children perceived certain aspects of getting and not getting grades. Forty-eight of the 51 experimental students wrote an ending to each of the 4 stories providing a total of 192 essays for examination. One story was written each day for four consecutive days.

For discussion purposes each story will be presented and followed by some sample responses written by the children. Specific information sought along with representative statements indicative of the same will then be considered. Finally, summary data regarding the stories will be presented in table form depicting percentages of pupils responding positively and negatively to certain implied topics.

**Story Number One: Report Card Day**

The students were asked to pretend the following story was about themselves and then to write how they felt it ended:

My parents brought me to school this morning. Just as I was getting out of the car they said to me, "Today is report card day, so be sure to come straight home." As I was walking into the school, I was thinking, "Gee, I don't get report cards, I get evaluation forms. I wonder what they meant."

The responses to this story ranged in length from two to several sentences with no length differences noted.
between high and low achievers. They were very expressive as the samples will reflect.

Sample A.--I guess they don't remember that I don't get grades. And they are so used to report cards they just can't remember. But I wonder what they meant by come straight home. I guess they meant not to lose my evaluation forms or to stay out late so they can't see my report if I am ashamed of it but I don't think I will be, I hope!

Sample B.--I went to school and I knew that I had got an evaluation form for my mother and father to see how well I was doing in school. Then when my mother and father saw that I was doing good on my form, except for math on measuring. I was glad that they knew that I had an evaluation form and every time I bring home bad papers, my mother helps me.

Sample C.--That day I didn't worry. We did everything as usual. When I got close to the end of the day, I thought, "What if I get 'below what should be expected'? Well I'll go straight home anyway." So we got our packets and I remembered what my parents said. I guess they said that because they want so to see the packet. So I went home. They were interested too. They said I had done well and gave me a $1.

It was hoped that responses to this story would give some indication of how they felt about at least three implied topics. Stress at the prospect of taking home the evaluation forms seemed to be pertinent. Little stress was evidenced, however, as the above and representative statements such as the following reflect: "They just want to know how I did," "Anyway, they wouldn't want my evaluation form to get lost," and "They want to see if I got something to please them, if not I'll get a long talking, I think I did good though."
Secondly, whether or not the pupils perceived their parents as being able to know about their school performance appeared important. This question was answered quite succinctly by a little boy of average ability when he said, "They meant today is the day when they can tell how I'm doing in school, but that's O.K."

Thirdly, if they perceived the evaluation forms as being substantially different from report cards, then the chances of treatment effect would seem to be greater. The following statement is indicative of the predominant view: "The main thing is they are kind of like report cards but you don't get a bad grade even when you work hard."

Responses to these three topics were for the most part consistent. Nevertheless, a percentage breakdown of how pupils responded appears at the end of this section.

**Story Number Two: The Parent-Teacher Conference**

The students were instructed to pretend they were the person the story was about and to write its ending. The story began as featured below:

My mother is coming to see my teacher for a conference today at 2:00 p.m. I told her that the teacher does not keep grades. She said, "That is true, but I think she can tell me how well you are doing anyway." Their talk probably went like this ... .

Many of the pupil's story endings included pleasantries and greetings indicating a relaxed atmosphere surrounding the conference, while others simply began with substantive
talk. It was interesting to note that with very few exceptions, the pupil featured himself as getting a favorable report. In most cases it was coupled with some qualification such as, "He is doing fine but needs to work harder."

Three stories are presented as representative samples:

Sample A.--Mom: Hello, Mrs. _____, how are you doing? Teacher: Oh, I'm doing fine, and you? Mom: Just fine, is my daughter doing fine in school? Teacher: She is doing just fine, and she is such a good little girl. Mom: Well thank you for telling me. I'm late for my beauty appointment.

Sample B.--Mother: How is _____ doing? Teacher: Very well and I am very proud of her hard work. But she needs to work on her writing. Mother: I will help her with her writing. Teacher: But she does talk out of turn and she does do good in all of her studies. Mother: Thank you.

Sample C.--Mom probably said, "How is she doing?" Mrs. _____ would say, "Fine, but she needs to work harder." Then Mom would say, "What does she need to work harder in?" Mrs. _____ would say, "Geography and science," Then the time would be up and Mom would say, "Thank you."

It was expected that at least two significant pieces of information could be gleaned from this story about the conference. How pupils perceived the structure and content of the conference would give some idea as to whether they felt the conference was considerate of their needs or whether it was more like a plot just to find out about their shortcomings. The conference was viewed primarily as a helping situation as reflected by statements like: Teacher - "He is
having some trouble in math." Parent - "Well, I guess I need to help him some at night."

The second type of information dealt with whether or not the pupil viewed the teacher as being able to inform the parent of how he was doing. There was no question they felt she could, for only four out of forty-eight pupils indicated otherwise. Statements such as the following seem to verify this view: "Your son is doing fine," "She needs to do more in social studies," "Could do better in reading," or "He isn't doing any good in measurements."

Story Number Three: Explaining Report to Adults

The pilot study (4) results indicated that pupils not receiving grades experienced some difficulty in articulating explanations of such a program to adults. The story intended to deal with the problem was designed as presented below:

A few days ago a pupil in a class that did not get grades went to spend the week-end with grandparents. The pupil had not been there very long when someone asked, "How have you been doing in school lately?" What do you think this pupil told the grandparents?

Many of the students mentioned the matter of being evaluated in terms of what was expected of them. They also seemed to indicate that the evaluation forms were more personal as typified in the four pupil stories herein duplicated:

Sample A.--My class doesn't get grades and neither do I. Instead of getting a report card every six weeks, we get evaluation forms. And they say: "He
or She is doing as well as what should be expected, below what should be expected, a great deal below what should be expected. So you see they tell more about how the child is doing in school. I've been doing pretty good.

Sample B.--I have been doing good and Mom and Dad know more about what I am doing. Since we don't get report cards we get our own personal report.

Sample C.--I do not get grades. I get evaluation forms. Well that's different. So the boy went and got his form. He had forgotten to take them to school. His grandparents understood this form better than the report card. They could tell more about what he was doing. They like it better. His parents liked it too. So he took it to school and turned it in.

Sample D.--I don't get grades. I get evaluation slips that tell me if I'm doing good or not. I like the idea of not getting grades. And you don't get in so much trouble! I think you'll like it, I do.

In contrast to the pilot study (4) a vast majority seemed to be very able to explain the system satisfactorily. Pupil confidence and articulation were exemplified in such phrases as: "You see, I get these evaluation forms. They tell me if I'm below what should be expected," or "I take home papers every Wednesday." Several pupils indicated that grandparents understood by quoting them as saying, "Well, that is good." On the whole, explaining the system to adults did not seem a problem to them. One plausible explanation for the contrasting results with the pilot study (4) was that sessions offering guidance were conducted in the class on this topic. In addition, the forms listing an evaluation in
terms of what should be expected were utilized only in the current experiment.

**Story Number Four: Peer Inquiries**

There was concern that the experimental pupils would feel self-conscious about being the only ones in the school not getting grades. However, conducting a pilot study (4) possibly negated some of the excitement of being in such an experiment as well as removed some of the self-consciousness of being so different. To furnish some insight on this issue from the perspective of the pupil, the ensuing incomplete story on peer inquires was composed:

We received our evaluation forms today though most other students got report cards with grades. Some of them had good grades and some had bad grades. Our reports tell about what we have been studying. They also tell how well we have been doing according to what we are able to do. These kids asked us all kinds of questions and . . .

Most of the questions posed and answers offered in response to this story appeared to be quite realistic as these six samples indicate:

**Sample A.**—"What are evaluation forms?" "They are almost just like report cards, except they only tell about you."

**Sample B.**—A fifth grader told me he had done it last year so he ask me if I liked it. I said yes because you don't get into as much trouble.

**Sample C.**—One Monday afternoon I was walking home. A girl asked me, "What did you make on your report card?" I said that we don't get grades, we get evaluation forms. She asked again what are those
and I told her that we have as well as should be expected, below what should be expected, a great deal below what should be expected. "What did you make?" "I make them all on the top which is as well as should be expected." And then I walked on home.

Sample D.--I don't get grades anymore, I get evaluation forms. And I like this better than getting grades. And my parents like it better too. They said we ought to have this more often and I agree with them too.

Sample E.--"Do you think your parents know more about what you are doing in school?" Answer: "Yes because we get our own personal report." "Do your parents like this method more?" Answer: "Not really because they said that they know that I've always tried before I gave up and that this method doesn't really tell them anything they don't know."

Sample F.--"Do you like not getting report cards?" "Yes." "Why don't you get grades?" "Because two classes in the fourth grade are taking an experiment." "Do you think that you do better without grades?" "Yes."

If self-consciousness were a problem to these pupils, it was not reflected in their stories. Not only did they field the questions with answers like, "We get evaluation forms that tell us what we need," but several added expressions such as, "Yes, we like it." For the most part, apprehension about peer attitudes and inquiries was apparently not a matter of concern to these pupils.

Analysis of the four unfinished stories presented in the preceding discussion was offered in an effort to provide insight into feelings the pupils may have had about not getting grades. In more quantitative terms the stories were examined
and tallies were kept on the number seeming to relate to the basic question addressed in those discussions. Results are presented in Table XXXIII. The table should be interpreted as a summary of the section dealing with the unfinished stories.

TABLE XXXIII

UNFINISHED STORY DATA PRESENTED BY STORY NUMBER, INFORMATION SOUGHT, AND TYPE OF RESPONSE

<table>
<thead>
<tr>
<th>Unfinished Story Identification</th>
<th>Information Sought</th>
<th>Percentage of Responses N=48</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pos</td>
</tr>
<tr>
<td>Story Number One: Report Card Day</td>
<td>. . . stress at prospect of taking evaluation forms home</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>. . . parents ability to know about pupil work</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>. . . evaluation forms as being basically different from grade cards</td>
<td>71</td>
</tr>
<tr>
<td>Story Number Two: Parent-Teacher Conference</td>
<td>. . . considerate of individual needs</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>. . . informative as to work quality</td>
<td>92</td>
</tr>
<tr>
<td>Story Number Three: Explaining to Adults</td>
<td>. . . ability to articulate explanation of reporting system</td>
<td>80</td>
</tr>
<tr>
<td>Story Number Four: Peer Inquiries</td>
<td>. . . ability to answer inquiries from graded peers</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>. . . apprehension because of not getting grades</td>
<td>2</td>
</tr>
</tbody>
</table>

*Not Applicable
Taped Interviews

Interviews were conducted in each of the four rooms by the school nurse in order to determine in a spontaneous group setting pupil reactions to an inquiry on how they felt about grades. Four to seven interviews were recorded in each class along with the background responses of the entire group. Three questions were written on the board and pupils were told by the interviewer that she sincerely wanted to know how they felt about those three things and that she also wanted to try out her new portable cassette recorder. The questions concerned something important that had happened to them this year, events they planned for the summer, and their feelings about grades. The first two questions were to help provide a more relaxed atmosphere in which to approach the main one concerning grades.

A total of nineteen interviews was recorded in addition to considerable group interactions with the interviewer. Nine interviews occurred in the control classes and ten in the experimental. Eight of the ten experimentalss expressed a preference for not getting grades. Six of the nine controls indicated a dislike for grades.

Portions of the interviews are presented to reveal the nature of the responses on which the above figures were obtained. Seven samples are duplicated and identified by group and ability classification.
Sample A: Experimental High IQ.--Interviewer - Third question, about not getting grades, how do you feel about it? Student - I like not getting grades. If I get a bad grade like a D or an F, my mother will give me a whipping. Without grades I will never get a D or an F.

Sample B: Experimental High IQ.--Interviewer - How did you like not getting grades? Student - Not very good. Interviewer - Why not? Student - I just didn't like it. Interviewer - What was it about it you didn't like? Student - Not getting to see the grades? Interviewer - You got to see your papers. Student - Yea, but I like grades better. Interviewer - Why? Student - I don't know. Interviewer - You don't know, but you just like them, uh? Student - Yea. Interviewer - You like getting grades on everything or just on your report card? Student - Report card.

Sample C: Experimental Low IQ.--Interviewer - How did you like not getting grades? Student - I like it because you don't know what your getting and its not grades. It's easier and you can think easier because you think you are not going to get any grades. Interviewer - So the papers you take home, what do they tell you? Student - Tell my parents I'm doing alright and I'm not doing too well or I'm not doing especially well. Interviewer - How do your mom and dad feel about it? Student - I think they like it but I'm not for sure.

Sample D: Control Low IQ.--Interviewer - Do you like grades? Student - Not really, I hate grades. Interviewer - Why? Student - Because they tell you if you make good or bad and make you fail when you make bad. Interviewer - Do you work hard for your grades? Student - Yes.
Sample E: Control High IQ.--Interviewer - What do you want to say about grades? Student - Well, I don't like report cards. Interviewer - What about them do you not like? Student - I'm afraid I'll make a bad grade. Interviewer - On your report card what would you think is a bad grade? Student - A C grade. Interviewer - What does a C mean to you? Student - Bad.

Sample F: Control Low IQ.--Interviewer - How did you feel about your grades? Student - Well, their pretty good. Interviewer - You like to get A, B, C grades? Student - I like to get A's and B's but not C's. Interviewer - Why not? Student - Cause their bad to me. Interviewer - C's are bad? Student - Yes, but sometimes I can raise them up, like in social studies, I raised a C up to a B. Interviewer - Is that good? Student - Yes. Interviewer - Who is pleased most, you or Mom and Dad? Student - Mom and Dad.

Sample G: Control High IQ.--Interviewer - Tell me about your grades. Student - Oh, they are pretty good. Interviewer - How do you feel about them? Student - I like them. Interviewer - Why? Student - If you don't get grades you will grow up dumb. Interviewer - Your grades don't make you smart do they? Student - Yea. Interviewer - How do they make you smart? Student - You have to study. Interviewer - So you study for your grade, uh? Student - Then you get your grades. You won't grow up dumb and not have a good education.

Examination of these results revealed that the pupils interviewed had a general dislike for grades and that those in the experimental group preferred a system without grades. Of the four expressing a desire for grades, two were low IQ, one was high IQ, and one was average. Of the fourteen expressing a dislike for grades, four were high IQ, five were average IQ, and five were low IQ. This indicated that the dominant view was without respect to ability classification.
It should be noted that at least two of the pupils indicated that a grade of C was bad and should be raised. Others indicated considerable pressure from parents to get good grades by mentioning fear of punishment for bad grades.

In summarizing this section, attention should be given to the fact that the interview results were fairly consistent with the opinions expressed in the unfinished stories. It should also be pointed out that the interview interactions involving parents parallel the results of the student questionnaire and the parent evaluation.

Student Questionnaire

A student questionnaire was administered to the experimental groups to help ascertain their attitudes toward selected aspects of not getting grades. The thirteen-part questionnaire was designed specifically for this study and though not purported to be an objective instrument, it was considered adequate by a jury of professional educators. The results obtained from this survey are presented in Table XXXIV. To facilitate presentation just the essence of each question is listed in the table. Each complete question in its exact form may be examined by making reference to Appendix D. Responses were classified according to total group, high IQ, and low IQ for fifty experimental pupils. Percentages of positive replies are reported in all three categories.
<table>
<thead>
<tr>
<th>Number and Subject of Question</th>
<th>Percentage of Positive Responses</th>
<th>Highs* N=13</th>
<th>Lows** N=13</th>
<th>Total N=50</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ... liked not getting grades</td>
<td>62</td>
<td>69</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>2. ... worked harder on assignments</td>
<td>54</td>
<td>62</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>3. ... worried less</td>
<td>31</td>
<td>23</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>4. ... knew how well were doing</td>
<td>23</td>
<td>31</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>5. ... knew how well friends were doing</td>
<td>62</td>
<td>62</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>6. ... got along better with classmates</td>
<td>62</td>
<td>77</td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>7. ... less cheating in class</td>
<td>69</td>
<td>38</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>8. ... more important to correct papers</td>
<td>62</td>
<td>92</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>9. ... wanted no grades next year</td>
<td>38</td>
<td>69</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>10. ... liked packet of papers</td>
<td>54</td>
<td>69</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>11. ... teacher showed more attention</td>
<td>54</td>
<td>100</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>12. ... more teacher comments</td>
<td>69</td>
<td>46</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>13. ... parents been happier</td>
<td>46</td>
<td>69</td>
<td>64</td>
<td></td>
</tr>
</tbody>
</table>

*High IQ's were those scoring 111 or above on the PMA Test.

**Low IQ's were those scoring 98 or below on the PMA Test.
The first question dealt with whether they liked not getting grades. In excess of 60 per cent of both "Highs" and "Lows" and 78 per cent of the entire class responded affirmatively. This would indicate that the middle ability group had the highest positive response. This is the highest response registered by the total group for any of the questions. Apparently a clear three-fourths majority liked the reporting system without grades.

Question two was concerned with work habits. The class as a whole was evenly divided, whereas 62 per cent of the "Lows" felt that they worked harder. Whether they actually did might be debatable, but the fact that in their view there was no cause for a relinquishing of attention to studies is contrary to commonly held beliefs about the motivating force of grades.

Responses to question three relating to "worrying less" under such a system ranged from 27 per cent of the "Lows" and 31 per cent of the "Highs," to 40 per cent of the total class answering "yes." According to those figures, the pupils did not feel that they worried significantly less, an attitude which also corresponded to the anxiety measures discussed earlier. This would indicate that there was ample concern about their progress.

The subject of question four referred to their knowledge of how well they were doing. More of the "Lows" felt they knew than did the "Highs" with 50 per cent of the entire
group indicating they knew. The fact that the "Lows" felt more knowledgeable may have been influenced by the fact that they felt they received more attention from the teacher.

Awareness of how friends were doing was the substance of question five. Slightly more than half of all three classifications said they knew how well their friends were doing. The question was based on the assumption that students would have known if they had all received grades. It could be that under this system they were just less interested in how friends were doing.

Question six referred to peer relationships. It is noteworthy that 77 per cent of the "Lows" thought they were able to get along better. The "Highs" may not have used their good grades as a basis for maintaining friendships as much as commonly thought for they registered a 62 per cent positive response. The general climate in the classroom characterized by all knowing they were evaluated in terms of their individual abilities may have helped provide other grounds for friendships to flourish.

The matter of cheating was the subject of inquiry in question seven. Sixty-nine per cent of the "Highs" said there was less cheating, whereas only 38 per cent of the "Lows" said "yes." The "Highs" may have felt less of a need to cheat while the "Lows" could have still felt some need themselves or thought it continued among others in the group. The question does not attempt to locate the source of
cheating but rather just deals with the extent of its existence as perceived by the pupils.

Question eight was associated with the importance of correcting papers. A striking 92 per cent of low achievers thought it important, suggesting there are reasons other than grades for correcting errors. A three-fourths majority of the entire group also agreed.

In relation to receiving grades the following year, the concern of question nine, it was the "Lows" again who were the most positive with a 69 per cent affirmative reply. Thirty-eight per cent of the "Highs" and 60 per cent of the total group answered "yes."

Question ten was in relation to the packet of papers and evaluation forms and solicited a 66 per cent positive response from the group. In excess of 50 per cent of both "Highs" and "Lows" also indicated they liked the papers. Perhaps the most significant finding of the questionnaire was the 100 per cent positive reply of the "Lows" to question eleven pertaining to the increased amount of teacher attention. The "Highs" registered the lowest response of 54 per cent while 72 per cent of the entire group voted "yes" to receiving more teacher attention. This is strongly indicative of their perceiving the classroom atmosphere as being one where individual attention prevailed. Apparently, the "Lows" felt as if they were treated as more important members of the group under this system.
Question twelve dealt with teacher comments on papers. Though over 60 per cent of the "Highs" and the entire group checked "yes," only 46 per cent of the "Lows" gave a similar answer. Since this is not consistent with the preceding question of teacher attention, the increased teacher attention was perceived in some form other than these comments.

In response to the final question, more of the "Lows" and the entire group viewed their parents as being happier than did the "Highs." The 46 per cent reply of the "Highs" is consistent with the 45 per cent response of parents of "Highs" to a question in their survey about the same issue. Nevertheless, 73 per cent of those same parents said that they liked this method of reporting in a subsequent question. The pupils did however, quite accurately, perceive their parents' attitudes.

Viewing the pupil questionnaire responses as a whole, they seemed to give the impression that the pupils had positive feelings about a reporting system without grades. This same impression was observed in the pilot study (4). Comparison of the pilot study with these results revealed that, though the exact percentages fluctuated considerably, the directions were essentially identical.

Parent Evaluation

Parents were asked to evaluate ten different aspects of the project. This information was obtained from a questionnaire inviting them to respond with a "yes," or "no," and/or
"comment." Data gathered with this instrument are presented in Table XXXV.

**TABLE XXXV**

PERCENTAGE OF EXPERIMENTAL GROUP POSITIVE RESPONSES TO PARENT EVALUATION SURVEY BY QUESTION AND GROUP CLASSIFICATION*

<table>
<thead>
<tr>
<th>Number and Subject of Question</th>
<th>Percentage of Positive Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highs N=11</td>
</tr>
<tr>
<td></td>
<td>Lows N=12</td>
</tr>
<tr>
<td></td>
<td>Total N=45</td>
</tr>
<tr>
<td>1. child aware of how well he was doing</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>98</td>
</tr>
<tr>
<td>2. child more involved in learning</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>36</td>
</tr>
<tr>
<td>3. attitude improvement due to project</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>53</td>
</tr>
<tr>
<td>4. reports and work samples as often as desired</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>98</td>
</tr>
<tr>
<td>5. reports and work samples adequate in content</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>91</td>
</tr>
<tr>
<td>6. better able to determine area of need</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>76</td>
</tr>
<tr>
<td>7. more aware of what child was attempting to learn</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>82</td>
</tr>
<tr>
<td>8. method of reporting been satisfactory</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>67</td>
</tr>
<tr>
<td>9. method of reporting takes more parent time</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>53</td>
</tr>
<tr>
<td>10. liked this method of reporting</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>76</td>
</tr>
</tbody>
</table>

*Based on a 94 per cent return of questionnaires.
Inspection of the table revealed that virtually all the parents considered their child as being aware of how well he was doing. It is implied that for parents to know this, pupils would also seem to be aware. Fifty per cent of parents of the "Lows" perceived their children as being more involved in learning.

Question number three dealt with improved attitudes thought to be due to the project. Most parents of the "Highs" said "no," whereas most parents of the "Lows" said "yes."

Items number four and five were concerned with frequency and adequacy of reports. All categories responded affirmatively with percentages ranging from 91 to 100 per cent. Closely connected to these was inquiry number six relating to determining areas of needs. All three groups registered positive replies ranging from 75 to 76 per cent. A vast majority of parents also considered themselves more aware of what their children were attempting to learn.

The key questions were the last three which dealt directly with how they liked the system. Less than one-half of the parents of "Highs" considered it satisfactory, though 73 per cent said they liked this method of reporting. This apparent discrepancy is explained by the fact that many of those parents wrote in minor suggestions for improvements along with their answer to question eight. Most parents felt that it took more of their time but considered the time well spent. The parents of "Lows" recorded an 83 per cent positive
response expressing approval of this method. The total group reply was 76 per cent affirmative.

These findings revealed that the parents involved in this study as a group strongly approved of this method of reporting. The parents of children with lesser abilities expressed an even stronger ratification of such a plan. For the most part, the parents seemed to have insight into the potential merit of a reporting system without grades.
CHAPTER BIBLIOGRAPHY


CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The present research was an investigation of the effect of two methods of reporting pupil progress on adjustment and achievement of fourth grade pupils in a suburban elementary school. One method involved the use of an evaluation form reflecting performance in terms of ability, parent-teacher conferences, and work samples. The other method was comprised primarily of competitive grading and marking procedures, utilizing a standard report card to report results.

The purposes of this study were to ascertain the relationship between these two methods of reporting and (1) academic achievement, (2) anxiety level, (3) self-concept, and (4) peer associations. Another purpose was to analyze the implications for educators in planning and improving student evaluation programs and parent report methods.

Utilizing "Solomon's Four Group Design," four sections of fourth grade were evenly matched on intelligence, reading level, academic achievement, and number of children with a history of behavior problems. The four existing teachers were randomly assigned to the experimental and control groups. The duration of the experiment was for one academic year.
The instruments employed included the Stanford Achievement Series, Piers-Harris Children's Self Concept Scale, the standard sociometric test, and Taylor's Manifest Anxiety Scale for Children. Other data gathering devices involved unfinished stories, taped interviews, student surveys, and parent evaluation.

The procedure for analysis of quantitative data encompassed the use of one-way analysis of variance, two-way analysis of variance, and analysis of covariance. The 5 percent level of confidence was set for rejection of the null hypotheses formulated. Samples of other collected data were presented and analyzed. The survey results were exhibited in table form and discussed accordingly.

Comparisons were made between mean gains of experimental and control groups. Groups were divided by IQ into approximately the upper and lower thirds for further comparisons. Selected analyses were also conducted on differences obtained when compared by sex.

Findings

The major findings resulting from analysis of statistical data presented in this study were the following:

1. No statistically significant differences from analysis of variance of mean gains were obtained regarding the twelve hypotheses tested in this research investigation.
2. Directions favoring the experimental groups were obtained for all seven group comparisons relative to mean gains in achievement. Included were the following:

(a) experimental groups as compared to control groups,

(b) experimental boys as compared to experimental girls,

(c) experimental girls as compared to control girls,

(d) experimental girls as compared to control boys,

(e) experimental boys as compared to control boys,

(f) experimental group low IQ's as compared to control group low IQ's,

(g) experimental group high IQ's as compared to control group high IQ's.

3. Directions favoring the experimental groups relative to self-concept analysis of variance of mean gains were obtained for five of the seven comparisons. They included:

(a) experimental group as compared to control group,

(b) experimental boys as compared to experimental girls,

(c) experimental girls as compared to control girls,

(d) experimental boys as compared to control boys,

(e) experimental high IQ's as compared to control high IQ's.
4. Directions favoring the experimental groups relative to sociometric status comparisons of mean gains were obtained for three of the seven comparisons. Included in these were:

(a) experimental boys as compared to experimental girls,
(b) experimental girls as compared to control boys,
(c) experimental boys as compared to control boys.

5. Directions favoring the experimental groups relative to anxiety comparisons of mean gains were not obtained for any of the seven comparisons.

6. No interaction effect between testing and treatment was observed.

Findings pertinent to the non-statistical data were:

1. Little stress was evidenced at the prospect of taking the evaluation forms home to parents.

2. Pupils seemed to believe that their parents knew about the quality of their school work even though no grades were given.

3. The pupils appeared to view the parent-teacher conference as a helping situation considerate of their needs and abilities.

4. The pupils perceived the teacher as being aware of how they were doing and capable of informing their parents.

5. Articulation of explanations of such a reporting system did not seem to be a problem to the pupils.
6. Seventy-eight per cent of the experimental pupils liked the system of reporting without grades.

7. One hundred per cent of low IQ's expressed the belief that the teacher showed them more attention during the time they were not getting grades.

8. Ninety-one to 100 per cent of the parents considered the report adequate, and 76 per cent indicated that they liked the method of reporting without grades.

Conclusions

Based on the findings of this research, the following conclusions seemed justified:

1. It may be concluded that children in this study who did not receive grades performed as well academically as those pupils who received grades. The motivating influence usually attributed to competitive grades did not appear to be operative for the controls in this situation. This conclusion may be applied to findings regarding all achievement comparisons conducted.

2. The directions favoring experimentals obtained in reference to self-concept seemed to justify the conclusion that there is potential merit in such a system for enhancing self-concept.

3. Findings concerning sociometric status seemed to indicate that the absence of grades had very little effect on peer associations. However, directions favoring
experimental boys were obtained when compared to experimental girls and when compared to control boys. Any effect on peer associations would be more likely to occur among boys.

4. No significant difference in anxiety comparisons led to the conclusion that the absence of grades did not reduce general anxiety levels. Directions indicated that anxiety levels were slightly higher in the experimental groups. However, when considered in the light of the unfinished stories, interviews, and pupil survey results, this conclusion is questionable. Pupils expressed in those findings an attitude of relief toward not getting grades. This instrument may not have been sensitive to what might be termed school-related anxiety as opposed to general anxiety.

5. Findings regarding pupil perceptions of parents and teachers as being aware of how they were doing inferred that children were capable of realizing that they could know about their work quality without the use of grades. In this context, they considered the parent-teacher conference a helping situation, leading to the conclusion that a diversified reporting system utilizing several approaches may give the pupil a feeling that he receives a more fair evaluation.

6. The fact that the majority of pupils liked this system of reporting and the fact that they were able to explain it to others led to the conclusion that they could adjust to such a program even in a grade-oriented society.
7. It may be concluded that pupils of low ability seemed to feel more acceptance and worth as individuals in such an evaluation and reporting program.

8. Deduced from the parent responses, it may be said that these parents were capable of understanding and discerning the potential merit of this type of reporting system.

Recommendations

On the basis of findings and conclusions of this study, the ensuing general recommendations are tendered:

1. Considerable staff planning should precede implementation of such a program, whether for experimentation or for practical application. Basic guidelines for evaluation procedures should be clearly delineated and made available to participating teachers.

2. Exploration of new methods and techniques of recording pertinent data in cumulative folders should be attempted.

3. It is strongly recommended that parents be kept thoroughly informed during developmental stages of such a program and that they have opportunity to make suggestions to the professional staff. Parent understanding and support is essential to effectiveness.

Recommendations for Further Research

Related to previously stated findings and conclusions, the following recommendations are offered for further research:
1. A similar study should be conducted on a longitudinal basis with pupils in an experimental group who start in first grade and complete at least four years of schooling without grades. The potentially harmful effects of grades may not be measurable in children in a shorter period of time as their effect may be a long-term process.

2. Further studies should be implemented to help develop a variety of methods and techniques of reporting that would accomplish the fundamental purposes that grades are now believed to achieve.

3. An effort should be made to ascertain the type of teacher orientation most compatible with teaching in a program where children are evaluated basically in terms of their individual abilities.

4. In the event that instruments are developed that would be more sensitive to the changes in self-concept and anxiety, another study comparable to the current investigation would deserve consideration.

5. The problem of anxiety should be investigated to determine if there is a basic difference between general anxiety and what might be termed school-related anxiety.
APPENDIX A

THE PIERS-HARRIS CHILDREN'S SELF CONCEPT SCALE
Here are a set of statements. Some of them are true of you and so you will circle the yes. Some are not true of you and so you will circle the no. Answer every question even if some are hard to decide, but do not circle both yes and no. Remember, circle the yes if the statement is generally like you, or circle the no if the statement is generally not like you. There are no right or wrong answers. Only you can tell us how you feel about yourself, so we hope you will mark the way you really feel inside.

1. My classmates make fun of me ........................................ yes no
2. I am a happy person .................................................. yes no
3. It is hard for me to make friends ...................................... yes no
4. I am often sad ............................................................. yes no
5. I am smart ................................................................. yes no
6. I am shy .................................................................... yes no
7. I get nervous when the teacher calls on me ....................... yes no
8. My looks bother me ..................................................... yes no
9. When I grow up, I will be an important person .................. yes no
10. I get worried when we have tests in school ....................... yes no
11. I am unpopular .......................................................... yes no
12. I am well behaved in school .......................................... yes no
13. It is usually my fault when something goes wrong ............. yes no
14. I cause trouble to my family ......................................... yes no
15. I am strong ............................................................... yes no
16. I have good ideas ....................................................... yes no
17. I am an important member of my family ........................ yes no
18. I usually want my own way ........................................... yes no
19. I am good at making things with my hands .................... yes no
20. I give up easily ........................................................ yes no
21. I am good in my school work ........................................... yes no
22. I do many bad things ..................................................... yes no
23. I can draw well ............................................................ yes no
24. I am good in music ........................................................ yes no
25. I behave badly at home .................................................. yes no
26. I am slow in finishing my school work ......................... yes no
27. I am an important member of my class ......................... yes no
28. I am nervous .............................................................. yes no
29. I have pretty eyes ........................................................ yes no
30. I can give a good report in front of the class ................ yes no
31. In school I am a dreamer ............................................... yes no
32. I pick on my brother(s) and sister(s) ......................... yes no
33. My friends like my ideas ............................................... yes no
34. I often get into trouble ................................................. yes no
35. I am obedient at home .................................................. yes no
36. I am lucky ................................................................. yes no
37. I worry a lot ............................................................... yes no
38. My parents expect too much of me ............................. yes no
39. I like being the way I am ............................................... yes no
40. I feel left out of things .................................................. yes no
41. I have nice hair .................................................. yes no
42. I often volunteer in school ........................................ yes no
43. I wish I were different ........................................... yes no
44. I sleep well at night .............................................. yes no
45. I hate school ...................................................... yes no
46. I am among the last to be chosen for games ................ yes no
47. I am sick a lot ..................................................... yes no
48. I am often mean to other people ............................... yes no
49. My classmates in school think I have good ideas .......... yes no
50. I am unhappy ..................................................... yes no
51. I have many friends .............................................. yes no
52. I am cheerful ..................................................... yes no
53. I am dumb about most things .................................. yes no
54. I am good looking ............................................... yes no
55. I have lots of pep ................................................ yes no
56. I get into a lot of fights ......................................... yes no
57. I am popular with boys ........................................ yes no
58. People pick on me ............................................... yes no
59. My family is disappointed in me .............................. yes no
60. I have a pleasant face ......................................... yes no
61. When I try to make something, everything seems to go wrong . . . . yes no
62. I am picked on at home . . . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
63. I am a leader in games and sports . . . . . . . . . . . . . . . . . . . yes no
64. I am clumsy . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
65. In games and sports, I watch instead of play . . . . . . . . yes no
66. I forget what I learn . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
67. I am easy to get along with . . . . . . . . . . . . . . . . . . . . yes no
68. I lose my temper easily . . . . . . . . . . . . . . . . . . . . . . . . yes no
69. I am popular with girls . . . . . . . . . . . . . . . . . . . . . . . . yes no
70. I am a good reader . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
71. I would rather work alone than with a group . . . . . . yes no
72. I like my brother (sister) . . . . . . . . . . . . . . . . . . . . . . yes no
73. I have a good figure . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
74. I am often afraid . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
75. I am always dropping or breaking things . . . . . . . . yes no
76. I can be trusted . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
77. I am different from other people . . . . . . . . . . . . . yes no
78. I think bad thoughts . . . . . . . . . . . . . . . . . . . . . . . . yes no
79. I cry easily . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . yes no
80. I am a good person . . . . . . . . . . . . . . . . . . . . . . . . . yes no

Score: ______
APPENDIX B

SOCIOMETRIC QUESTIONNAIRE

(Your Teacher) _____________ (Your Name) _____________

I. List below the names of three students in your class with whom you would like to work on a class project.
   1. __________________________
   2. __________________________
   3. __________________________

II. List below the names of three students in your class with whom you would like to play.
   1. __________________________
   2. __________________________
   3. __________________________

(Your classmates will not know whom you have named.)
APPENDIX C

TAYLOR'S MANIFEST ANXIETY SCALE FOR CHILDREN

Directions: Read each statement carefully. Put a circle around the word Yes if you think it is true about you. Put a circle around the word No if you think it is not true about you.

Yes  No 1. It is hard for me to keep my mind on anything.
Yes  No 2. I get nervous when someone watches me work.
Yes  No 3. I feel I have to be best in everything.
Yes  No 4. I blush easily.
Yes  No 5. I notice my heart beats very fast sometimes.
Yes  No 6. I like everyone I know.
Yes  No 7. At times I feel like shouting.
Yes  No 8. I wish I could be very far from here.
Yes  No 9. Others seem to do things easier than I can.
Yes  No 10. I am secretly afraid of a lot of things.
Yes  No 11. I feel that others do not like the way I do things.
Yes  No 12. I would rather win than lose in a game.
Yes  No 13. I feel alone even when there are people around me.
Yes  No 14. I have trouble making up my mind.
Yes  No 15. I get nervous when things do not go the right way for me.
Yes  No 16. I worry most of the time.
Yes  No 17. I worry about what my parents will say to me.
Yes  No 18. I am always kind.
Yes  No 19. Often I have trouble getting my breath.
Yes  No  20. I get angry easily.
Yes  No  21. My hands feel sweaty.
Yes  No  22. I have to go to the toilet more than most people.
Yes  No  23. Other children are happier than I.
Yes  No  24. I always have good manners.
Yes  No  25. I worry about what other people think about me.
Yes  No  26. I have trouble swallowing.
Yes  No  27. I have worried about things that did not really make any difference later.
Yes  No  28. My feelings get hurt easily.
Yes  No  29. I worry about doing the right things.
Yes  No  30. I am always good.
Yes  No  31. I worry about what is going to happen.
Yes  No  32. It is hard for me to go to sleep at night.
Yes  No  33. I worry about how well I am doing in school.
Yes  No  34. My feelings get hurt easily when I am scolded.
Yes  No  35. I often get lonesome when I am with people.
Yes  No  36. I am always nice to everyone.
Yes  No  37. I feel someone will tell me I do things the wrong way.
Yes  No  38. I am afraid of the dark.
Yes  No  39. It is hard for me to keep my mind on my school work.
Yes  No  40. Often I feel sick in my stomach.
Yes  No  41. I worry when I go to bed at night.
Yes  No  42. I tell the truth every single time.
Yes  No  43. I never get angry.
Yes  No  44. I often do things I wish I had never done.
Yes No 45. I get headaches.

Yes No 46. I often worry about what could happen to my parents.

Yes No 47. I get tired easily.

Yes No 48. I never say things I shouldn't.

Yes No 49. It is good to get high grades in school.

Yes No 50. I have bad dreams.

Yes No 51. I am nervous.

Yes No 52. I often worry about something bad happening to me.

Yes No 53. I never lie.
APPENDIX D

STUDENT QUESTIONNAIRE

Name_________________________ Teacher_________________________

Instructions: Listed below are thirteen questions about the grading project in your class. Your answers will help us to better understand your feelings about not getting grades. To answer yes, place a check mark in the blank following the word yes. To answer no, place a check mark in the blank following the word no. Please carefully read and answer each question.

1. Do you like the idea of not getting grades? Yes____ No____

2. Do you feel that you worked harder to get your assignments since you quit getting grades? Yes____ No____

3. Has not getting any grades caused you to worry less? Yes____ No____

4. Since not getting grades have you had less trouble finding out how well you were doing in your school work? Yes____ No____

5. Have you been able to find out how well your friends are doing in their school work? Yes____ No____

6. Have you been able to get along better with your classmates? Yes____ No____

7. Do you think there has been less cheating in your class since all of you quit getting grades? Yes____ No____

8. Do you think it is more important to correct your errors on papers if you don't get grades? Yes____ No____

9. Would you like to not get grades next year? Yes____ No____
10. Do you like to take home the packet of papers rather than a report card? . . . . Yes ___ No ___

11. Do you feel your teacher showed you more attention during the time you have not been getting grades? . . . . . . . . Yes ___ No ___

12. Have you had more teacher comments written on your papers since you quit getting grades? . . . . . . . . . . . . Yes ___ No ___

13. Have your parents been happier since you quit getting grades? . . . . . . . . Yes ___ No ___
APPENDIX E

PARENT EVALUATION

Dear Parent:

The special project on grading in which your child has participated this year has progressed satisfactorily. However, we would very much like to know your opinions and observations. You can help us evaluate the project by completing the questions below.

1. Has your child been sufficiently aware of how he was doing?
   Yes  ____  No  ____  Comments: ____________________________________________

2. Has your child indicated that he/she is more involved in learning since no grades have been given?  Yes  ____  No  ____
   Comments: ________________________________________________________________

3. Have you noticed any improvements in your child's attitude toward learning that you feel are directly related to this project?
   Yes  ____  No  ____  Comments: ____________________________________________

4. Have you received reports and work samples as often as you desire?
   Yes  ____  No  ____  Comments: ____________________________________________

5. Have these reports and work samples contained information adequate for you to form judgments about how well your child was doing?
   Yes  ____  No  ____  Comments: ____________________________________________
6. During this period, have you been better able to determine those areas in which your child needed special help or attention?

Yes ___ No ___ Comments: 

7. Have you been more aware of what "knowledges and skills" your child was attempting to learn?

Yes ___ No ___ Comments: 

8. Has this method of reporting been more satisfactory?

Yes ___ No ___ Comments: 

9. Has this method of reporting taken more of your time?

Yes ___ No ___ Comments: 

10. Have you liked this method of reporting?

Yes ___ No ___ Comments: 

11. Other comments, evaluations, suggestions or observations:


Thank you for your help,
APPENDIX F

(SAMPLE)

EVALUATION FORM

NAME ___________________________ DATE ___________________________

Social Studies

The social studies are concerned primarily with human relations. School experiences should help provide the child with insight into the structures and processes through which people live, work, and play together. Each child should be growing continuously in the abilities needed for effective participation in the life of a free society. A developing appreciation of the American heritage in particular is a basic part of these learning activities.

In terms of his/her ability, your child seems to be progressing:

_______ as well as should be expected.

_______ below what should be expected.

_______ a great deal below what should be expected.

1. Major objectives for this reporting period: ___________________________

   ___________________________________________________________________

   ___________________________________________________________________

   ___________________________________________________________________

2. Activities and projects: ___________________________

   ___________________________________________________________________

   ___________________________________________________________________

   ___________________________________________________________________

3. Other evaluations: ___________________________

   ___________________________________________________________________

   ___________________________________________________________________

   ___________________________________________________________________

Parent Signature

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Final evaluation is based on examination of recorded performance levels for the entire year. This report is primarily concerned with performance in terms of individual ability. Ability is broadly interpreted to include any factor that may have influenced learning endeavors this year. Standardized achievement test results may be obtained by conferencing with the teacher.

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<th>SUBJECT</th>
<th>EVALUATION IN TERMS OF INDIVIDUAL ABILITY</th>
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Placement for next year:

Homeroom  Reading Level  Math Level

TEACHER COMMENTS:
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