

ROOM USE ONLY

ROOM USE ONLY

~~MAR 14 1969~~ 157

~~JAN 31 1969~~ K37

~~FEB 11 1969~~ RS

~~FEB 20 1969~~ r35

~~MAR 11 1969~~ 110

~~APR 4 1969~~ 78

~~APR 14 1969~~ 6

OCT 7 1969
SNAG 4/14/71

~~JUL 30 1969~~ 12

~~OCT 8 1973~~ 281
K-95

ABSTRACT

A COMPARISON OF ACHIEVEMENT AND ATTITUDES OF SIXTH-GRADE STUDENTS IN REGULAR AND COMBINATION GRADES

by Robert Raymond Schmatz

Statement of the Problem

It was the purpose of this study to compare the academic progress and attitudes of sixth grade pupils in combination fifth and sixth grade with similar pupils in regular sixth grade classrooms.

Procedures

Sixth grade pupils from ten combination classrooms were designated as the experimental group. Sixteen regular sixth grade classrooms were in the same buildings which housed the experimental classes. Children in the regular sixth grade classrooms were designated as the control group. The two groups were found to be equal in terms of socio-economic background and measured ability. A pre-test in the areas of reading, arithmetic, and language skills indicated that the two groups were equal in each of the three areas measured. It was also found that pupils with below average, average and above average I.Q. scores were equivalent in prior achievement in all three areas. The

teachers of the experimental and control groups were equal in terms of their measured attitudes. Throughout the school year, teachers taught their classes in a manner acceptable to their administrators, supervisors, fellow workers and themselves.

An alternate form of the pre-test was administered as the post-test. The "t" test was used to analyze the mean gain-scores and test the hypotheses. An attitude scale was presented to both groups at the end of the study and responses were compared by "chi-square" tables.

Findings

The findings of this study were interpreted in terms of the following hypotheses.

- H₁ Sixth-grade pupils who are assigned to combination fifth and sixth-grade classrooms will make academic progress in reading, arithmetic, and language skills, equal to like pupils in regular sixth grade classrooms.
- H₂ Sixth-grade pupils, with below-average, average, and above-average intelligence, who are assigned to combination fifth and sixth-grade classrooms will make academic progress in reading, arithmetic, and language skills equal to like pupils in regular sixth-grade classrooms.
- H₃ Sixth-grade pupils who are assigned to combination fifth and sixth-grade classrooms will have attitudes toward school and other people, as positive as pupils in regular sixth-grade classrooms.

All hypotheses were supported when statistical tests were applied to the post-test data. The sub-parts of H₁ were also supported in each of the three areas measured. No significant differences in achievement or attitudes were found between the experimental and control groups.

Conclusions

1. Sixth-grade pupils who are assigned to combination fifth and sixth grade classrooms will make academic progress in reading, arithmetic and language skills equal to the progress made by students in regular sixth grade classrooms.
2. Sixth-grade pupils with below-average, average, and above-average ability are neither at a decided advantage or disadvantage in measured learning as a result of placement in a heterogeneously grouped combination fifth and sixth-grade classroom.
3. The attitudes of sixth grade pupils in combination classrooms are as positive as are the attitudes of pupils in regular classrooms.

A COMPARISON OF ACHIEVEMENT AND ATTITUDES OF
SIXTH-GRADE STUDENTS IN REGULAR AND
COMBINATION GRADES

By

Robert Raymond Schmatz

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF EDUCATION

College of Education

1964

ACKNOWLEDGEMENTS

The writer would like to express his grateful appreciation to Dr. William K. Durr, his major professor for his guidance, encouragement, and stimulation throughout the course of this study and the writer's doctoral program.

To the members of the doctoral guidance committee, Dr. William Walsh, Dr. Herbert C. Rudman, and Orden C. Smucker for their helpful suggestions and criticisms.

To the College of Education Research Bureau for assistance in design of this study and treatment of the data.

To the administrators, teachers, and sixth-grade pupils in Pontiac, Michigan, for their gracious and continued cooperation.

And to my wife Ruth for her patience and understanding.

TABLE OF CONTENTS

Chapter	Page
I. BACKGROUND OF THE STUDY	1
Rationale	1
The Problem	7
Hypotheses	8
Definition of Terms	9
Major Assumptions	11
Procedure	12
Variables and Instruments	13
Limitations of the Study	14
Plan of the Report	16
II. REVIEW OF THE LITERATURE	17
The Nongraded Elementary School	20
Multi-grade or Inter-age Grouping	26
Combination Grades	32
III. THE METHOD OF THE INVESTIGATION	40
Introduction	40
Instruments Used in the Study	40
<u>Edward's Occupational Test</u>	41
<u>California Test of Mental Maturity</u>	42
<u>California Achievement Test</u>	45
<u>The Pupil Attitude Scale</u>	54
The Testing Sequence	56
Methods of Testing the Hypotheses	57
Summary	59
IV. ANALYSIS OF THE DATA	60
Difference in Mean Gain Scores of Experimental and Control Group	61
Differences in Mean Gain Scores for the Sub-groups	63
Results of Pupils Attitude Scale	68
Summary	69

Chapter	Page
V. SUMMARY, CONCLUSIONS, AND IMPLICATIONS	73
Summary	73
Purpose of the Study	73
Procedure	74
Major Findings	76
Additional Findings	78
Conclusions	78
Implications	81
For Administrators	81
For Teachers	82
For Parents	83
For Future Research	84
BIBLIOGRAPHY	86
APPENDICES	90

LIST OF TABLES

Table		Page
1.	Numbers and percentages of pupils at each of six socio-economic levels	42
2.	Numbers of pupils, means, variances, and results of tests for significance between the means of the experimental and control groups . .	43
3.	Numbers of pupils, means, variances, and results of test for significance between the mean of the control and experimental group of pupils having I.Q. scores greater than 110	44
4.	Number of pupils, means, variances, and results of test for significance between the mean of the control and experimental group for pupils having I.Q. scores between 90 and 110	45
5.	Number of pupils, means, variances, and results of test for significance between the mean of the control and experimental group for pupils having I.Q. scores less than 90 . .	45
6.	Numbers of pupils, means, variances and results of test for significance between the mean of the control and experimental group in the area of reading	47
7.	Numbers of pupils, means, variances and results of test for significance between the mean of the control and experimental group in the area of arithmetic	47
8.	Numbers of pupils, means, variances and results of test for significance between the mean of the control and experimental group in language skills	48
9.	Numbers of pupils, means, variances, and test for significance in the area of reading for pupils having I.Q. scores greater than 110	49

Table		Page
10.	Numbers of pupils, means, variances, and test for significance in the areas of arithmetic for pupils having I.Q. scores greater than 110	49
11.	Numbers of pupils, means, variances, and test for significance in the area of language skills for pupils with I.Q. scores greater than 110	49
12.	Numbers of pupils, means, variances, and test for significance in the area of reading for pupils having I.Q. scores between 90 and 110	50
13.	Numbers of pupils, means, variances and test for significance in the area of arithmetic for pupils having I.Q. scores between 90 and 110	50
14.	Numbers of pupils, means, variances, and test for significance in the area of language skills for pupils having I.Q. scores between 90 and 110	51
15.	Number of pupils, means, variances, and test for significance in the area of reading for pupils having I.Q. scores of less than 90	52
16.	Numbers of pupils, means, variables and test for significance in the area of arithmetic for pupils having I.Q. scores less than 90	52
17.	Numbers of pupils, means, variances, and test for significance in the area of language skills for pupils having I.Q. scores less than 90	52
18.	Numbers of teachers, means, variances and results of test for significance between the mean scores of teachers of experimental and control groups	54
19.	Numbers of pupils, means, and variances and results of tests for the significance of the difference in mean gain scores in the area of reading	62

Table		Page
20.	Numbers of pupils, means, and variances and results of tests for the significance between mean gain scores in the area of arithmetic	62
21.	Numbers of pupils, means, and variances for the results of tests for the significance between mean gain scores in the area of language skills	62
22.	Numbers of pupils, means, variances and results of test for significance in mean gains in reading for pupils with I.Q. scores of less than 90	64
23.	Numbers of pupils, means, variances and results of test for significance of the difference in mean gains in arithmetic for pupils with I.Q. scores less than 90	64
24.	Numbers of pupils, means, variances, and results of test for significance of the difference in mean gains in language skills for pupils with I.Q. scores less than 90	64
25.	Numbers of pupils, means, variances and results of test for the significance in mean gains in reading for pupils with I.Q. scores between 90-110	65
26.	Numbers of pupils, means, variances, and results of test for significance of the difference in mean gains in arithmetic for pupils with I.Q. scores between 90-110	66
27.	Numbers of pupils, means, variances, and results of test for significance of the difference in mean gains in language for pupils with I.Q. scores between 90-110	66
28.	Numbers of pupils, means, variances and results of test for the significance of the difference in mean gains in reading for pupils with I.Q. scores greater than 110	67

Table		Page
29.	Numbers of pupils, means, variances and results of test for the significance of the difference in mean gains in arithmetic for pupils with I.Q. scores greater than 110	67
30.	Numbers of pupils, means, variances and results of test for the significance of the difference in mean gains in language for pupils with I.Q. scores greater than 110	68
31.	Pupil response and test for significance on twenty items in the attitude scale . . .	70

CHAPTER I

BACKGROUND OF THE STUDY

Rationale

The trend toward increasing urbanization in the world today has placed before American educators some perplexing problems in the area of school organization. Populations of cities are increasing. Every year thousands of families move to cities as technological advances limit the opportunities for small farmers. In addition, there are many internal changes taking place within cities. Adjustments are being made by minority groups, especially the American Negro, in his progress toward attainment of middle-class status. There are shifts in population because of the desire of people to buy homes of their own. Today more people have the means of becoming home owners. Some inter-city migrations are a direct result of demolition of older buildings in planned programs for urban renewal. These programs necessitate temporary moves for some families, and more permanent moves for others. Such population changes are uneven and can result in unpredictable school enrollments from one year to the next.

City school systems are generally subdivided into specific elementary school districts. These districts are

established by administrative policy to maintain a balance in school enrollments suited to physical capacities of existing buildings. They also serve as a means of identification for parents, enabling them to know the school their children will attend. This identification is understandable as the elementary school has long been considered the common school by citizens. It still remains rather closely tied to the neighborhood it serves. From within these neighborhood school districts come the pupils who will attend each elementary school.

Elementary schools in the United States are usually organized on a graded plan. In 1961, the National Elementary School Principals' Yearbook on Elementary School Organization stated: "A very notable and distinctive benchmark in elementary education was established in 1848 when Philbrick created the Quincy Grammar School in Boston."¹ This type of school organization, which provided one teacher per grade, gave rise to what is still known today as the graded school.

A great deal has been learned about the process of learning since the establishment of the graded school in America. One major contribution was the concept of "developmental tasks"² by Robert J. Havighurst. He uses

¹National Elementary Principal, Elementary School Organization (Washington: The National Elementary School Principals' Yearbook, 1961), p. 51.

²Robert J. Havighurst, Human Development and Education (New York: Longmans, Green and Co., 1953).

the concept of developmental tasks to point out that human development is gradual and continuous, though an uneven process. Many factors affect the manner in which an individual handles these tasks, not the least of which is the cultural setting in which a child is reared.

The implication of developmental tasks for the graded school is used by Cronbach to support his claim that, "rigid age-grading is not a good policy for a school."¹ While each developmental task becomes important at a certain period in the person's life, it is not correct to assume that people go through the developmental sequence at an exactly uniform rate or in a fixed order. There are no sharp divisions in the development of individuals which warrant sharp breaks in a school curriculum. While a few modern schools provide teaching when the student needs it, social tradition and administrative systems remain as barriers to obtaining the education tailored to individual needs.

Cook² indicates that an emphasis which the traditional graded schools process places on striving for homogeneity in classes, encourages teachers to set goals for instruction which result in temporary factual learning.

¹Lee J. Cronbach, Educational Psychology (New York: Harcourt, Brace and Company, 1954), pp. 222-28.

²Walter W. Cook, Educational Psychology, A Book of Readings, ed. Arthur P. Colaradci (New York: The Dryden Press, 1955).

In all patterns of school organization, the assignment of a given number of pupils to each teacher is a matter which receives annual attention. The graded system of organization compounds the problem of pupil assignment to teachers. Not only is it necessary for a teacher to be assigned a given number of pupils, but the selection must be made on the basis of students available at each grade level. It is a rare instance when an equal number of pupils at each grade level meets an acceptable teacher-pupil ratio.

There are some important reasons why teacher-pupil ratio is given prime consideration in school organization. One reason is that the ratio of students to teachers is an important factor in the development of school budgets. As budgets are formulated from six to nine months before the beginning of a school year, board members and administrators find it necessary to use class size as a yardstick of measurement in planning expenditures. Teachers are also very concerned about class size since they view this as a measure of their teaching load.

One outcome of these concerns is that school boards frequently establish both maximum and minimum class sizes to be used in their school systems. Teacher groups advocate class sizes of from twenty to twenty-five pupils, but generally find classes numbering about thirty. Twenty-five pupils is frequently used as a minimum class size, while thirty is often established as a maximum.

Establishment of policies regarding maximum and minimum class sizes does provide administrators a fixed measure to use in computation of the next annual budget. It also indicates to teachers approximate class enrollments for the next year. However, establishment of a policy on class size creates a problem for the building principal when he apportions pupils to teachers at each grade level. This is especially true when the number of students exceeds the established maximum class size and is not large enough to permit formation of an additional class. An example of this would be the school system with a policy of minimum class sizes of twenty-five and maximum class sizes of thirty. If there were forty-four pupils at a given grade level, this number would far exceed the planned maximum. If the group were split into two sections, it would be too far below the minimum to be economically feasible. It is in situations such as this that administrators frequently establish a combination of two grades into one classroom unit.

When a combination of two grades is established, there is little evidence to assist the principal and teachers in determining proper pupil placement. It is common to hear of combinations being made with half of the class being above-average pupils from the lower grade and the other half being below-average pupils from the higher grade. It is almost equally as common to have combinations of average pupils from both grades. Regardless of the manner in which

grade combinations are established, they are open to criticism.

The research done thus far on combination grades has been meager. The studies which have been published have not been of a magnitude great enough to affect the thinking of most teachers and parents. It is still the general wish by parents that their children be placed in a classroom with one teacher per grade. Parents believe that their children will be at a disadvantage in combination grades. In 1935, an investigation by Knight¹ reported a negative attitude toward combination grades by both parents and teachers. Chance² reported the same attitude still present at the time of his study in 1961. He also reported an instance where plans for a multi-graded program were abandoned because of parental objection.

Combinations of more than one grade into a single classroom can be defended on the basis of budget requirements. They can also be defended because of the need for maintaining a balance in teacher-pupil ratio. Objections are raised because teachers and parents believe pupils will learn less in combination grades than they will in regular grades. A need exists, therefore, to provide additional

¹E. E. Knight, "A Study of Double Grades in New Haven City Schools" (unpublished Doctor's thesis, Yale University, 1935).

²Earl Stanley Chance, "An Analysis of Some Effects of Multiple Grade Grouping in an Elementary School" (unpublished Doctor's thesis, University of Tennessee, 1961).

information about the use of combination grades in elementary schools.

In light of what is known about learning and mental growth, the mechanics of the graded school remain largely unchanged. Modifications of the graded school such as combination classes are challenged both from within and outside of the teaching profession. This is true in spite of known and proved practices in learning which refute the concept of sharp breaks in curriculum planning. Additional insight into ongoing practices in elementary schools is necessary if the beliefs of people are to be verified or changed enough to enable better educational programs for children to develop.

The Problem

The purpose of this study was to provide additional needed information. Specifically, the purpose was twofold. The first aspect was an investigation of the academic progress of all pupils in combination sixth grades. This progress was measured in comparison with other sixth-grade pupils who were assigned to regular sixth grades during this same period of time. In addition, all pupils were assigned to one of three sub-groups. Each of these sub-groups were representative of pupils with I.Q. scores classified as below average, average, or above average. Academic progress in the areas of reading, arithmetic, and language skills were compared for total group and each of the sub-groups.

The second purpose of this study was to compare attitudes of pupils in combination sixth grades with attitudes of pupils in regular sixth grades. All pupils were asked to express their attitudes toward school, subjects, teachers, and friends. Results of pupil opinion was compared to determine if pupils in combination grades have attitudes as positive as those of pupils in regular sixth grades.

Hypotheses

1. Sixth-grade pupils who are assigned to combination fifth and sixth-grade classrooms will make academic progress in reading, arithmetic, and language skills, equal to like pupils in regular sixth-grade classrooms.
 - A. Sixth-grade pupils, with above-average intelligence, who are assigned to combination fifth and sixth-grade classrooms will make academic progress in reading, arithmetic and language skills equal to like pupils in regular sixth-grade classrooms.
 - B. Sixth-grade pupils, with average intelligence, who are assigned to combination fifth and sixth-grade classrooms, will make academic progress in reading, arithmetic and language skills equal to like pupils in regular sixth-grade classrooms.

- C. Sixth-grade pupils with below-average intelligence, who are assigned to combination fifth and sixth-grade classrooms, will make academic progress in reading, arithmetic and language skills equal to like pupils in regular sixth-grade classrooms.
2. Sixth-grade pupils who are assigned to combination fifth and sixth-grade classrooms will have attitudes toward school and other people, as positive as pupils in regular sixth-grade classrooms.

Definition of Terms

The definitions which follow are intended to clarify the sense in which they are used in this investigation. Unless otherwise noted, the definition used is based upon past research or common usage in the field of education.

1. Combination grade: The grouping of pupils of two grades into a single class for the purpose of carrying on classroom activities and keeping the class size at a desirable level.¹
2. Regular grade: A classroom which is made up of students that are designated to the same level for academic work.
3. Experimental group: Those students (sixth grade) who have been assigned to combination fifth and sixth grades during this study.

¹C. V. Good (ed.), Dictionary of Education (2d ed.; New York: McGraw-Hill Book Company, Inc., 1959), p. 250.

4. Control group: Those sixth-grade pupils who have been assigned to regular sixth-grade classrooms in a building also housing an experimental group.
5. Average intelligence: A score on an intelligence test indicating an I.Q. greater than 89 but less than 111.
6. Above-average intelligence: A score on an intelligence test indicating an I.Q. greater than 110.
7. Below-average intelligence: A score on an intelligence test indicating an I.Q. less than 90.
8. Ungraded or nongraded school: A school in which grade labels are not applied to students.¹
9. Multigraded or interage grouping: The type of elementary school class in which the pupils are not identified by any standard grade level and which includes more than one grade usually provided for in the standard grade system.²
10. Class size: The number of pupils assigned to one classroom unit for the purpose of instruction.
11. Attitude: How an individual feels, or what he believes.³
12. Graded School: A school in which each class or

¹Ibid., p. 586.

²Stuart E. Dean (ed.), Elementary School Administration and Organization (Washington, D.C., U.S. Government Printing Office, 1960), p. 29.

³John W. Best, Research in Education (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1959), p. 155.

progress group has a teacher and classroom of its own.¹

Major Assumptions

This study is based upon the assumption that assignment of pupils to classrooms for instruction is of vital interest to parents, teachers, and administrators. Throughout the history of elementary education in America, various patterns of elementary school organization have appeared. Additional changes in organization of schools for instruction are being undertaken now and other changes will undoubtedly occur in the future. Throughout these periods of change, educators must continually examine and evaluate on-going practices. Some past practices have been maintained because of their obvious acceptance and success. Others have continued because of a lack of known improvements or sufficient motivation to implement improvements. Continued changes and improvements in elementary school organization must occur if schools are to remain in harmony with the changing values and ethics of the society in which they function.

In consideration of combination grades as an organizational device, one must also consider the individual academic and social adjustment of children who participate in these classes. An examination of grade combinations, therefore, is actually a study of the manner in which

¹Good, op. cit., p. 251.

pupils adjust to a given learning situation. If educators are to continue to use combination grades, sound justification for their utilization on an academic and social basis must be founded. If, on the other hand, parents, teachers, and administrators oppose the use of combinations of two or more grade levels into one classroom unit, the basis for this objection must be substantiated.

It was assumed by the researcher that the study was designed in a manner to provide evidence which will lead to broad conclusions on the use of combination grades. Involved in this assumption is the expectation that the instruments utilized were adequate for the measurements which were made. The sample used in this study was intended to be representative of a much larger universe and similar findings should be predictable for other urban areas. Existing grade assignments were used and no research controls were placed upon the assignments of pupils or teachers. In addition, no attempt was made to structure the procedure of teaching in either the regular classrooms or in the combination classrooms. This permitted complete freedom for teachers to organize and conduct their classrooms as they chose. It was assumed that the instructional procedures were representative of those normally used by teachers in America.

Procedure

The following steps were taken in carrying out this study:

1. The literature which is significantly related to this study was reviewed. This was done in three parts: Non-graded classrooms, multi-graded classrooms, and combination grades. The principles involved in any one of these areas are so interwoven with the other two that it seemed necessary to develop a broad basis from which to proceed.
2. Sixth-grade pupils were designated as experimental and control groups on the basis of two different types of classroom assignments--regular grades, combination grades.
3. All students involved in the study were pre-tested and post-tested in the areas of reading, arithmetic, and language skills. A total of 141 students were used as the experimental group, and 349 students were used as a control group.
4. A pupil opinion questionnaire on attitudes toward school, home, subjects, peers, and reflecting parental attitudes was developed and administered.
5. Data gathered from the tests and questionnaire were tabulated, analyzed, and interpreted.
6. Conclusions were drawn, and recommendations were made.

Variables and Instruments

The independent variables controlled in this study were intelligence of pupils, previous achievement of pupils,

socio-economic status of pupils, and teaching talent of staff teaching both experimental and control groups.

The nature of the grade assignment, either regular grade or combination fifth and sixth grade was the dependent variable.

The California Test of Mental Maturity was used to measure the I.Q.'s of the sixth-grade pupils. The California Achievement Test, Form X, was used as the pre-test measure and Form Y was used as the post-test measure. All pupils indicated the type of work done by their parents, and the Edwards Occupational Index was employed as a measure of socio-economic status. The teachers completed the Minnesota Teacher Attitude Inventory to provide a means of equating them on the basis of their attitudes.

Limitations of the Study

This study was limited to children from a mid-western city with a population of approximately 90,000. Sixth-grade children were used in this study because of the number of combination grades available. A total of 11 of the 26 elementary schools expected that this selection would provide a broad base of pupils with varying socio-economic backgrounds. It was also intended that this large representation of elementary schools would be an accurate representation of the city.

Other information in this study was obtained from:

1. School records of the children.

2. Experts in the field of elementary education.
3. Research journals.
4. Dissertations, theses, and other research in the area of elementary school organization.
5. Questionnaires and tests given the children in this study.

The class groups were not structured, in that the study was begun after grade assignments had been made. There was no attempt to vary the teaching procedure of any person involved in this study. The participation of the teacher was not needed until the final six weeks of the school year. At that time, the study was explained to individual teachers and their cooperation was requested. All of the teachers who taught a combination fifth and sixth grade agreed to participate in this research study. Prior to this time, background work in analysis of previous pupil progress was begun through the central office. Records of I.Q. testing and previous test scores were obtained from the permanent file maintained by the elementary coordinator.

A total of 11 buildings had organized combination fifth and sixth grades. Of this number, 10 buildings were included in this study. One small school was not included, as there were no other regular sixth-grade students housed in this building. All other buildings had at least one other regular sixth grade, in addition to the combination grade.

It was the policy of the school district that all students complete the California Achievement Test¹ in the fall of the sixth grade, so this data were readily available. Teachers were informed of the study prior to the post-test in May. This was done to eliminate any possibility of a Hawthorne²-like effect upon the data and also to remove any threat which the study might have upon the behavior of any teachers. An alternate form of the California Achievement Test, Form Y, was administered to all sixth-grade pupils by the classroom teachers.

Plan of the Report

Chapter I provides an introduction to the study by orientating the reader to the problem and acquainting him with the general design. Chapter II is a review of the literature which is significantly related to this study. Chapter III outlines the design and procedure of the study. Chapter IV contains an analysis of data. Chapter V presents a general summary of the study, conclusions, and implications based on the results of this study.

¹Ernest W. Tiegs and Willis W. Clark, California Achievement Tests (Monterey, California: California Test Bureau, 1957 edition).

²Desmond L. Cook, "The Hawthorne Effect in Educational Research," Phi Delta Kappan, XLIV, No. 3 (December, 1962), pp. 116-22.

CHAPTER II

REVIEW OF THE LITERATURE

In the twenty-year period following the founding of the Quincy Grammar School in 1848, the graded plan became established in this country. This organizational plan was simple in design and received widespread approval by local school districts. It was founded on the basis that accomplishments were primarily the result of differences in willingness to work. A certain package of fundamental skills and knowledge was viewed as appropriate for mastery within each level. If one applied himself, he would be successful in school and move on to the next grade. If he did not apply himself adequately, he could try to do so the following year.¹

According to Beauchamp,² the graded school is the most common pattern of organization in schools today. The plan may be viewed as one of simply assembling children into grades in accordance with their chronological age. As far as administrative grouping of children for instruction,

¹"Elementary School Organization, Purposes, Patterns, and Perspective," National Elementary Principal, XLI, No. 3 (December, 1961), pp. 78-79.

²George A. Beauchamp, Basic Dimensions of Elementary Method (Boston: Allyn and Bacon, Inc., 1959), pp. 200-201.

the age-grade grouping plan seems to have worked as well as any other arrangement.

While it is true that age-grade grouping is a workable manner of pupil classification, there are objections being raised on other grounds. Goodlad questions the use of efficiency as the sole criterion in deciding how to group pupils for instruction. The fact that the age-grade method of grouping has proven to be efficient does not necessarily mean that this is the way in which pupil classification should be made.¹

The ASCD has shown how local dissatisfaction with the graded plan in the past prompted school districts to experiment with various other organizational schemes.² Plans such as the "Pueblo Plan," the "Dalton Plan," and the "Winnetaka Plan" are examples of attempts which were made to break the lock step system of grade organization. The graded system originally was an attempt to provide homogeneity in the classroom, but it has failed to do this, and it actually interferes with well-articulated learning for children. Typically, teachers of the graded school tended to work toward uniform standards. This results in slow learners being retained while accelerated learners are being blocked from making more rapid progress.

¹John I. Goodlad and Robert H. Anderson, The Non-graded Elementary School (New York: Harcourt, Brace and Company, 1959), p. 56.

²ASCD, A Look at Continuity in the School Program, 1958 Yearbook (Washington, D.C.: The Association, 1958), pp. 202-13.

The graded school often tends to become extremely goal oriented at each grade level. The more limited the goals of a grade, the more likelihood of increased homogeneity in children. However, if the goals are sufficiently difficult to tax the capacity of the superior individuals, the variability of the group will increase during the period of instruction.¹ When limited grade goals are set, rote memory is stressed; and considerable time is wasted in striving toward these goals.

Cronbach² points out some of the disadvantages of rigid age-grading of children. Grouping by age assumes that pupils of the same chronological age have the readiness for the same activities. Although it is possible to identify developmental tasks which occur during a period of maturation, there is the ever-present problem presented by uneven sequence and the rate at which these are mastered. Research and experience have demonstrated that all pupils are not ready for the same tasks at the same time. Some children may have optimum readiness to learn to read at age six, while others may not arrive at this point until a year or more later. In addition, some individuals may have already passed the teachable moment at the time his age-grade group is deemed ready to learn.

¹Robert H. Beck, Walter W. Cook and Nolan C. Kearney, Curriculum in the Modern Elementary School (New York: Prentice-Hall, Inc., 1953), p. 47.

²Cronbach, op. cit., pp. 221-37.

A real limitation of the graded plan, as stated in the ASCD Yearbook, is that "The potentialities for any kind of continuity in learning seem rather doubtful in a curriculum that has been preplanned by adults, to be mastered by children block by block."¹ Grouping of pupils for instruction needs to involve not only past performances but also readiness for future tasks. The key seems to lie with the ability of teachers to translate into action understandings gleaned from child development and sound educational objectives.

The mechanical removal of grade lines will not in itself provide continuity in learning. However, removal of traditional graded goals will afford teachers opportunities to implement a program based upon the continuous growth of children.

This chapter is a review of the literature on recent trends which challenge the graded concept: the non-graded elementary school, the multigraded classroom, and combination grades.

The Nongraded Elementary School

In the introduction to their book on the nongraded elementary school, Goodlad and Anderson² clearly indicate the relationship between the modern nongrading approach and the one-room schoolhouse. However, the authors also make it equally clear that the present nongraded school is a

¹ASCD 1958 Yearbook, op. cit., p. 212.

²Goodlad and Anderson, op. cit.

direct outgrowth of new learnings in the areas of curriculum, psychology, administration, and social sciences. It is an organizational plan based on the concept of continuous, uneven, and individual growth of children. The authors define a nongraded school as one where the grade labels have been entirely removed from various grade levels.¹

One of the earliest reported programs in nongrading was in Western Springs, Illinois.² This program was begun in 1935 and was highly acclaimed by teachers in the system. They reported that their pupils were happier and more interested in their school work than they had been in graded classrooms. The nongraded program enabled continuous advancement for pupils and eliminated the necessity of failures and skipping of grades. The teachers were unanimous in approving nongrading as a superior arrangement to the graded program of instruction.

A program of ungraded primary classrooms was begun in Milwaukee in 1942. Kelly³ reported strong support for the program by both parents and teachers. She found children making better social and academic adjustment than in previous years. Nongrading was initiated in one school but spread to 33 elementary schools in a three-year period. Kelly

¹Ibid., p. 55.

²L. B. Wheat, "Flexible Primary School," The Nations Schools, Vol. 22 (October, 1938), pp. 26-28.

³Florence C. Kelly, "Doing Away with Grade Levels," National Education Association Journal, Vol. 37 (April, 1948), pp. 222-23.

also reported that, although it was found necessary to grade children for city and state statistical purposes, flexibility in grouping could still be accomplished within each school.

In 1948, Park Forest, Illinois, introduced the ungraded primary school as part of its new school system. Six years of experience with this plan was evaluated in 1954.¹ It was found that a lack of understanding by parents and teachers resulted in a carry-over of limitations inherent in the graded program. However, marked decrease in pupil failure was also found during this period. The educational program of pupils remained the same as in the graded program except for greater flexibility in timing of instruction. Teachers were able to adjust their teaching to the level of the individual child without the limitation of the grade standard. Pupil adjustment to school was reported as much improved over previous years.

Eldred and Hillson² indicate that the removal of grade levels can have a very positive influence upon pupil adjustment. They state that the system of graded organization of schools contributes its share of personality maladjustment, mental illness, juvenile delinquency, crime, and a host of other problems. The non-graded school will

¹Marion B. Tucker, "The Shoe Didn't Fit," National Educational Association Journal, Vol. 45 (March, 1956), pp. 159-61.

²Donald N. Eldred and Maurie Hillson, "Nongraded School and Mental Health," Elementary School Journal, Vol. 63 (January, 1963), pp. 218-22.

not eliminate all of these, but such organization could have a far-reaching effect in producing healthy personalities and reducing problems. One area in which this is of special importance is in reduction of failures and resulting improved self-image by pupils. The student in the nongraded school has the opportunity to catch up during periods of rapid growth which do not coincide with the graded school.

DiPasquale¹ reported measurable benefit from an ungraded program. He credited it with aiding in a marked decline in truancy and vandalism. The children were reported to be better adjusted socially and emotionally. They also were found to have a greater pride in their school than had been true in the graded program. Some skeptical teachers at the beginning of nongrading soon became strong supporters of it. The nongraded school was placed into operation without additional staff and resulted in a more easily administered program of instruction.

Goodlad² reports changes in curriculum resulting from nongrading practices. He indicates that nongrading provides greater stimulus for making other kinds of curriculum changes. In addition, Goodlad says that nongrading places students in a learning situation where there is a reduction of tensions, especially for the slow learner. It

¹Vincent DiPasquale, "Schools Without Grades," Better Homes and Gardens, Vol. 33, Part II (September, 1955), pp. 28 plus.

²John Goodlad, "Promising Practices in Nongraded Schools," Education Digest, Vol. 27 (October, 1961), pp. 8-10.

is also credited with providing the academically talented students with a more stimulating atmosphere in which to learn.

The nongraded program has been most widely introduced at the primary level. Lamers¹ indicates that problems of the graded school are most acute at this level and therefore are more receptive to change. Promotion or failure in the lower elementary grades has long been based on the erroneous assumption that students needed to try again to understand the content or develop a particular skill at that level before moving along. Among the advantages he cites are: that the child competes with himself, and that problems do not pile up at any one age level. If a program of nongrading is to be effective, the teachers must understand it and continuous orientation for parents must be maintained. The length of time gifted students are required to spend in the primary school depends on their achievement and growth, mainly in the areas of subject matter, content, basic skills, physical, social, and emotional growth.

In 1960 a survey of about 550 nongraded schools was made and later reported by Anderson and Goodlad.² They found that when studies using statistical measures of

¹William M. Lamers, "Milwaukee Ungraded Primary Plan," American School Board Journal, Vol. 145 (November, 1962), pp. 11-13.

²Robert H. Anderson and John I. Goodlad, "Self-Appraisal in Nongraded Schools: A survey of Findings and Perceptions," Elementary School Journal, Vol. 62 (February, 1962), pp. 261-69.

achievement scores were made, differences in favor of the graded plan were rare. In answer to questions relating to social, emotional, and personal adjustment of children, responses were overwhelmingly positive in favor of the nongraded plan. They also found that parental attitude was highly positive toward nongraded schools.

Brinkman¹ believes that the adjectives "nongraded" and "ungraded" should be dropped when describing organizational patterns which made a departure from the graded plan. He favors such labels as the "primary school" and the "intermediate school" in their place. He notes that professional resistance to an ungraded school is often the major hurdle for the schoolman to surmount. The traditional teacher views any invasion of the work of the next grade level as a break in professional ethics. Therefore, any break with the graded program needs to drop the entire concept and terminology associated with grades.

Carbone² concluded that a change in the organizational structure of a school will not necessarily result in a better academic program. He found that teachers in nongraded schools often used graded practices and pursued graded goals. In addition, the tests used to measure

¹Albert R. Brinkman, "Now It's the Ungraded School," PTA Magazine, Vol. 55 (June, 1961), pp. 24-26.

²Robert F. Carbone, "Achievement, Mental Health, and Instruction in Graded and Nongraded Elementary School," (unpublished Doctor's thesis, University of Chicago, 1961).

results were geared to the graded school. He concluded that it is not realistic to expect improved academic achievement and personality adjustment in pupils, merely on the basis of a change in organizational structure. His research indicated that the measured academic progress of pupils was not enhanced merely by utilization of a nongraded program. He recommended that if schools adopt a nongraded organizational plan, they also adopt their instructional goals to the individual needs of pupils.

Available research evidence strongly supports objections which have long been made to the graded plan of elementary school organization. The concept that children can and do fit an annual yardstick-type measurement results in a multitude of social and academic problems for both pupils and teachers. Because of uneven and erratic growth of individual children, the division between two grade levels, such as fifth and sixth, can become an exceedingly difficult line to determine. The strongest argument for the graded program appears to be that it is established as tradition in elementary schools.

Multi-grade or Inter-age Grouping

In recent years, there has been considerable interest in multi-grade or inter-age grouping of pupils in elementary classrooms. Multi-graded means the type of elementary school class in which the pupils are not identified by any standard grade level and which includes more than an age range of one year as is normal in the

graded classroom.¹ Lane and Beauchamp² favor groupings of this nature as classrooms would then more nearly resemble groups in which people find themselves. They question the age-grade concept which implies that twelve months is the optimum age span for a school group. Play groups of children encompass three to five years and present individual children with a much wider range of social identification. The typical age-grade grouping of one year, as used by graded schools, breaks down after a person completes his formal education and finds himself working in a group representing a wide age range.

Rehwoldt³ designed a study to measure the effects of multiple-grade grouping on elementary age pupils in the areas of scholastic achievement, personal adjustment, social adjustment, social maturity, behavioral characteristics, and attitudes toward school and peers. He used one elementary school in which all classrooms were made up of eleven pupils from each of three different grade levels. Two broad groupings were made, primary level and intermediate level. Test results at the end of one year indicated that pupils in the multi-graded classrooms made

¹Stuart E. Dean, Elementary School Administration and Organization (Washington, D.C.: Government Printing Office, 1960), p. 29.

²Howard Lane and Mary Beauchamp, Human Relations in Teaching (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1955), pp. 298-309.

³Walter Rehwoldt, "Aspects of Multigrade Teaching in the Elementary Schools" (unpublished Doctor's thesis, University of Southern California, Los Angeles, 1957).

higher scores in all of the measured areas than did matched pupils in graded classrooms of the same school district. Most of the differences were statistically significant at the .05 level of confidence.

A follow-up of the multi-grade plan of Terrance, California, led Hull¹ to the conclusion that pupil progress is so enhanced that there is something inherent in this plan of grouping that educators should consider in all school organization. He reported that a three-year survey of pupil progress indicated that learning in multi-graded classrooms, as measured by tests now available, is definitely superior to the graded classroom. Hull favors multiple-grade teaching as it enables better timing of instruction, especially in the teaching of reading.

Carlson² cites inter-age grouping as being one of the most successful systems yet devised for grouping young children. To achieve the best education in an elementary school, he indicates that the following factors must be considered: (a) the operation of the school must be flexible, (b) there must be a general growing-up process in place of the grade placement system, (c) the child must have a purpose in education, (d) a group should operate in a democratic way, (e) the mentality of children must

¹J. H. Hull, "Multiple-Grade Teaching," The Nation's Schools, Vol. 62 (July, 1958), pp. 33-36.

²Wesley H. Carlson, "Interage Grouping," Educational Leadership, Vol. 15 (March, 1958), pp. 363-68.

receive prime attention, (f) the child must be respected as an individual. Although Carlson recognized that inter-age grouping will not guarantee a good educational program, he does think that a teacher will tend to perform better in such a program. The nature of the grouping also serves to encourage the teacher to put forth his best efforts in meeting the individual needs and abilities of children.

The development of one program of multigrade grouping was reported by Gilbert.¹ The plan emerged from staff concerns about the inability of the graded plan to fit the operations level of pupils. The school staff felt that the grade concept did not permit teachers to utilize knowledge available to them about learning and children. They, therefore, adopted a multi-graded plan to overcome the limitations of grading and to permit teachers and children to function in a less structured atmosphere.

Yunghams² looked at the multiple-grade classrooms of the Lutheran Church Missouri Synod Schools. The three areas he measured were personal adjustment, social adjustment, and Christian attitudes of pupils. His findings led him to conclude that multi-grading did not result in significant improvements in these areas. He recommended continuance

¹Jerome H. Gilbert, "Multigraded Developmental Plan Focuses on Pupil Advancement," Chicago Schools Journal, Vol. 43 (February, 1962), pp. 209-214.

²Ernest E. Yunghams, "The Effects of Class Organization and Time on the Teacher's Ability to Classify His Pupils with Respect to Three General Personality Traits," (unpublished Doctor's thesis, Indiana University, 1959).

of research on the effectiveness of multiple-grade teaching, especially with regard to the effect of grouping on the personality development of children.

In 1948, a study based more on circumstances than design measured the progress of fourth, fifth, and sixth grade pupils in a multi-graded classroom. Foshay¹ used a procedure in which this group was measured near the beginning of the school year and again at the end. He found that the control group made up of pupils in regular graded sections made significantly greater gains in arithmetic, reading, spelling, and language usage than did pupils in the multi-graded classroom. The mean gain of the experimental group was approximately one-half year as measured by the achievement test. It must be recognized, however, that this group represented an atypical elementary school. The average I.Q.'s of both experimental and control groups were in excess of 125, and all of these students were enrolled in the Columbia University Laboratory School.

Chance² measured pupil achievement in multi-graded classrooms. He used classrooms with from two to four grades under the direction of one teacher. He indicated that his study was limited by the lack of pre-test evidence and that his findings were based upon post-test achievement of students. With the evidence available, he found no significant

¹Arthur W. Foshay, "Interage Grouping in the Elementary School," (unpublished Doctor's thesis, Teachers College, Columbia University, 1948).

²Chance, op. cit.

differences in the achievement of students in regular and multi-graded classrooms. His study was further restricted in that a limited sample of students was used. A total of eighty-six pupils representing four grade levels made up his experimental sample. One class was made up of pupils from grades three and four; a second was a combination of grades five and six; and the third group had students from grades three, four, five, and six. He reported that although there were differences in the achievement of pupils indicating a superiority of the multi-graded classrooms, his study design prevented any generalized conclusions.

This review of the literature indicates the need for additional studies in multi-grade grouping to retest the conflicting findings of Rehwoldt and Foshay, which strongly support this need. The use of interage grouping has been rather limited; but with the spread of the ungraded school concept, opportunities for experimentation in multi-age grouping should be enhanced. As more research information becomes available in the area of pupil grouping and learning, the possibilities for individual progress of pupils will be enhanced.

Stratemeyer¹ states that inter-age grouping may offer the special stimulation which some pupils need. This break with the traditional pattern of grouping could permit more

¹Florence B. Stratemeyer, Hamden L. Forkner, Margaret G. McKim, A. Harry Passow, Developing a Curriculum for Modern Living (New York Teachers College, Columbia University, 1957), p. 438.

freedom for the learner and greater flexibility in curriculum.

Combination Grades

Few studies of combination grades have been made. The first noteworthy investigation was made by Knight¹ in 1935. His review of prior studies indicated that little had been done to measure learning in combination grades. Earlier studies which had measured achievement of pupils dealt mainly with contrasting rural schools to city schools. Knight concluded his survey of the literature by stating that he had not reviewed a single study which had matched children in an attempt to discover if pupils in combination grades achieved as much as pupils in regular grades.

Knight enlisted fourth-grade teachers in Hartford, Connecticut, to assist in his investigation of learning in combination grades. As a group, the teachers involved in the study agreed upon basic procedure for teaching during the school year. It was understood that teachers in combination grades would ignore grade level barriers and teach the entire class as a unit whenever possible. Teachers were also informed that if pupils could perform above their designated grade level at the end of the year, they would be considered for double promotion the following year.

Knight used a pre-, post-test measure of fourth-grade students in combination grades. The study included pupils who were assigned in combinations of grades three

¹Knight, op. cit.

and four, and in combinations of grades four and five. The only statistically significant difference in the achievement of pupils in regular and combination grades was found in spelling. In this one area, the pupils in regular fourth grades achieved significantly higher scores. However, Knight reported that students in regular grades had spent more time on spelling and studied more words each week than the pupils in combination grades. In all other areas, the achievement of pupils in combination grades was equal to the achievement of pupils in regular grades.

Knight made a brief analysis of pupil reaction toward combination grades by asking children to respond to their like or dislike for combination grade assignments. His survey indicated that only a small percentage of students disliked placement in combination grades. However, of those indicating this dislike, all (three) were in the sixth grade.

Teachers were also surveyed for opinions about combination grades. They found combinations of grades one and two, and combinations of five and six the most difficult to work with in terms of pupil adjustment. Knight also found that 76 per cent of the teachers reported that double grades had no effect, or else a favorable one, on the child's attitude toward his school work.

Adams¹ analyzed achievement test scores of native

¹Joseph J. Adams, "Achievement and Social Adjustment of Pupils in Combination Classes Enrolling Pupils of More Than One Grade Level," Journal of Educational Research, Vol. 47 (October, 1953), p. 155.

born, white, fifth-grade pupils from middle-class neighborhoods who had been assigned to combination fourth and fifth grades in Pasadena, California. He found that when their achievement test scores were matched with like students in regular fifth grades no statistically significant differences in academic achievement could be found. He selected 150 pairs of students tested annually between 1946 and 1952 by the Progressive Achievement Test. Adams used a separate sample to investigate the social structure of combination grades and administered a sociometric test to three regular fifth grades and to pupils in six combination fifth grades. Three of these combination grades were made up of fourth- and fifth-grade pupils and three were made up of fifth- and sixth-grade pupils. The results of his sociometric investigation revealed that although combination grades showed no inferiority to regular classes with respect to number of choices outside of the class, number of mutual choices, and other indices of group interaction, there did appear to be a tendency for pupils in combination grades to separate into four groups on the basis of sex and grade level.

The literature makes it clear that not all teachers view the task of teaching combination grades in the same manner. Petery¹ describes the program she followed in teaching a combination first and second grade. The daily

¹Mercedes Petery, "Teaching a Double Grade? It's a Real Challenge," Instructor, Vol. 69 (September, 1959), p. 19 plus.

schedule is organized in a manner which enabled her to divide her time between the two grades. Thus one grade was receiving instruction while the other was doing seat work.

Suggested Schedule for a Double First and Second Grade¹

8:45	- 20 minutes	Grade 1 - reading Grade 2 - reading seatwork
9:05	- 25 minutes	Grade 2 - reading Grade 1 - reading seatwork
9:30	- 15 minutes	Grade 1 - writing Grade 2 - writing practice
9:45	- 15 minutes	Grade 2 - writing Grade 1 - writing practice
Recess		
10:00	- 25 minutes	Grade 2 - arithmetic Grade 1 - arithmetic seatwork
10:25	- 20 minutes	Grade 1 - arithmetic Grade 2 - arithmetic seatwork
10:45	- 15 minutes	Grade 2 - spelling Grade 1 - free drawing or spelling seatwork
11:00	- 10 minutes	Both Classes - sharing and relaxing before lunch

Follow a similar schedule after lunch, including the afternoon reading classes, science, and quiet time.

A schedule structured such as this reflects strong commitment to a graded program. Distinct lines are drawn between the two grade levels even though a day or week might be all that separates the youngest second grader from

¹Ibid., p. 19.

the oldest first grader. Approximately one-half of the teacher's time is devoted to each grade. A schedule such as this gears the pupils and the entire program toward a limited, grade-end goal, rather than individual growth. As such, it places limitations upon pupil progress and handicaps both groups of students.

In basic agreement with Petery, Hartzler¹ points out the advantage of having movable furniture in a classroom with two grades. Her seating arrangement was such that the fifth graders sat in a semi-circle facing the blackboard at one end of the room. The sixth graders also sat in a semi-circle, facing a blackboard on the other side of the room. This arrangement gave a feeling of privacy to each grade. At times when both classes were to recite together, all could turn their desks and face the same blackboard.

A somewhat different view of working with combination grades is expressed by Bahner.² In Englewood, Florida, the elementary school had a combination second-third grade and a fifth-sixth grade one year and was faced with the likelihood of more such combinations in the future. The staff looked at the potential enrollment and examined alternate possibilities of organization. It was decided to include a

¹Ruth Hartzler, "Experimenting with Split Grades," Ohio Schools, Vol. 37 (May, 1959), p. 32.

²J. M. Bahner, "Grouping Within a School," Childhood Education, Vol. 36 (April, 1960), pp. 354-56.

section of each grade level in a combination grade the following year. In this way it was possible to remove the extremes of severely retarded and accelerated pupils from one classroom. It also made it possible for some pupils to complete the six-year elementary school in just five years by completing two years of work while in a combination grade. In the same manner, it was possible to decelerate the progress of individuals to a seven-year elementary program without the stigma of failure at any grade level.

Hunter states that the addition of a second grade is merely a continuation of a condition which is generally found in any classroom. One real concern of teachers of combination grades stems from the thinking that all material in all books must be taught each year to all pupils. If the teacher of the combination grade forgets this notion, which should be done also in the normal classroom, the job becomes greatly simplified. The teacher must first get a clear picture in mind of the entire program. When this is done, instruction can proceed in terms of individual growth rather than on the basis of grade standards. If one thinks of combination grades in this framework, it is possible to proceed with an effective instructional program.¹

The more important grade standards loom in the eyes of the teacher, administrator, and parent, the greater will be the concern over limitations of combination grades.

¹M. W. Hunter, "Two Grades in One Room!" Instructor, May, 1942, p. 8.

During the time when the grade standard concept of education was at its height, formation of grade combinations was viewed as most undesirable. Otto¹ indicates that although this negative attitude toward double grades has not disappeared entirely, research and experience have shed new light on their utilization.

Bienvenu and Martyn² suggest specific consideration be given to pupils who are to be assigned to combination grades. They recommend that assignment of pupils to such grades not be made on the basis of I.Q. reading scores, or any other measure of academic ability. If the administrator does make combinations in this manner, he will usually encounter parental resistance. Therefore, they recommended that grade combinations be formed on the basis of chronological age. Pupils assigned to combination grades should be as nearly as possible in the same age group, even though two grade lines are crossed. They also feel that some curricular areas require special attention if combination grades are organized. The social studies should be apart from those units which are normally utilized in either of the two grades. In this way, if a pupil moves to another school or to a single grade assignment, there will be no repetition of

¹Henry J. Otto, Elementary School Organization and Administration (3rd ed.; New York: Appleton-Century-Crofts, Inc., 1954), pp. 308-10.

²Harold J. Bienvenu and Kenneth A. Martyn, "Why Fear Combination Classes," American School Board Journal, Vol. 130 (April, 1955), pp. 33-34.

content. They cited the need for administrators to be positive in dealing with teachers and parents and in no way be defensive about the formation of a combination grade. The role of the administrator was viewed as vital to the success of the combination grade.

In a compilation of combination grades,¹ some additional basis for past concern about combinations is presented. There was at one time a stigma associated with combination grades which was felt by teachers, pupils, and parents. It was common practice to place problem children, slow learners, and misfits into these rooms.

The organization of an elementary school should be in agreement with the values held by the culture in which it operates. In addition to being a workable administrative unit, an elementary school must provide an atmosphere in which teachers can develop a sound curriculum program. It is equally important for a comprehensive evaluation to be made of the entire school program, for the structure can become the scapegoat for other ills which are less observable. With continued evaluation of practices now in use, progress can be made toward the improvement of instruction.

Of the studies reviewed, none used a large sample from a single school district without altering the teaching procedures which were normally used in that district. None of the studies reviewed made an attempt to analyze the attitudes of pupils assigned to combination grades.

¹"What About Combination Grades?" Childhood Education, Vol. 32 (December, 1955), pp. 187-88.

CHAPTER III

THE METHOD OF THE INVESTIGATION

Introduction

The general design of the study was presented in Chapter I as an orientation to the procedures used in conducting the study. This chapter will present (1) the various instruments used in the study, together with the methods used to equate the experimental and control groups, (2) the testing sequence, and (3) the methods employed in testing the hypotheses.

Instruments Used in the Study

The following instruments were used in the study: (1) the Edwards Occupational Index, (2) the California Test of Mental Maturity, (3) the California Achievement Test, (4) the Minnesota Teacher Attitude Inventory and (5) the Pupil Attitude Scale.

Edward's Occupational Index¹

The Edward's Occupational Index² was developed for use in the United States Bureau in the 1940 Census. Since that time, the Edward's Index has been widely used in economic, political, and social-psychological, and sociological research. His broad groupings are designed to show the distribution of general status for the entire population in terms of occupational groups. In addition to the above, the Edward's Index has also been used in the area of educational research.

In this study, the attempt was made to choose pupils of the same socio-economic background for the experimental and control groups. As the selection of the control group was determined by the location of experimental classes, there tended to be a likeness among individuals in both groups. The administrative policy of neighborhood school districts tended to make homogeneous groups in each of the elementary schools used in the study. In addition, the number of schools used in the study (10) tended to provide a good sample of the socio-economic scale of the community. In areas where an overbalance of pupils was found representing a given socio-economic level, a random selection of individuals was made and the total number was reduced to provide a balance in each of the six broad classifications.

¹Edward's Occupational Index, reported in Bernard Barber, Social Stratification (New York: Harcourt, Brace and Company, 1957), pp. 171-85.

²Ibid., pp. 171-72.

Table 1 shows the number of pupils in each of the various socio-economic classifications.

Table 1. Numbers and percentages of pupils at each of six socio-economic levels.

	I	II	III	IV	V	VI
	Highest	Upper	Upper- Middle	Lower- Middle	Lower	Lowest
Experimental	4(3%)	5(3%)	11(8%)	18(13%)	43(30%)	60(43%)
Control	10(3%)	14(4%)	28(8%)	42(12%)	105(30%)	150(43%)

California Test of Mental Maturity

The California Short-Form Test of Mental Maturity was written by Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs.¹ The 1957 edition of this test is the result of over twenty years of research and development. Users of the California Short-Form Test of Mental Maturity have reported a correlation of 0.88 with the Stanford-Binet, and a correlation of 0.81 with the Wechsler-Bellevue. The test is divided into seven parts which yield two summary scores, language and non-language scores. These total scores produce the interpretive data of the test. The authors indicate that each area has a general population I.Q. mean of 100 and a standard deviation of 16.

All pupils included in this study were administered the California Short-Form Test of Mental Maturity prior

¹Elizabeth T. Sullivan, Willis W. Clark and Ernest W. Tiegs, The California Short-Form Test of Mental Maturity (Monterey, California, California Test Bureau, 1957).

to the pre-testing period. These I.Q. scores were made available through summary sheets maintained at the central office of the school district. Only those pupils were included in this study. The summary of these test scores for the two groups of sixth-grade pupils are presented in Table 2.

Table 2. Numbers of pupils, means, variances, and results of tests for significance between the means of the experimental and control groups.

	Number of Pupils	Mean I.Q.	Variance	"z"
Experimental	141	101.63	16.97	
Control	349	101.89	16.57	.19

$$z .05 = 1.65$$

Both groups were found to have mean I.Q. scores slightly higher than 100. The difference between the mean I.Q. scores of the experimental and control groups was so slight that the two groups were considered equal in measured intelligence.

Another matter of concern to the researcher was the manner in which the I.Q. scores of the two groups were distributed into the high, middle and low ranges. These ranges were previously defined as being greater than 110, between 90 and 110, and less than 90.

Tables 3, 4 and 5 summarize the distribution of the scores in each of these three sub-groups. Among the pupils having I.Q.'s greater than 110, pupils in combination

classrooms had somewhat higher scores than did pupils in regular classrooms. Similar pupils in combination classrooms had a mean I.Q. score of slightly more than 119, and the pupils in regular classrooms had mean I.Q. scores slightly less than 118. This difference was not found to be significant at the .05 level of significance.

Pupils with I.Q. scores between 90 and 110 were found to have mean scores of slightly below the average of 100 in the experimental group. Pupils in the control group had I.Q. scores of slightly above the standardized average of 100. Again, this difference was not found statistically significant.

The mean I.Q. scores of pupils having scored less than 90 on the California Short-Form Test of Mental Maturity were almost identical with a mean of 82.73 for the experimental group and a mean of 82.22 for the control group.

On the basis of the above information, the likeness of the sub-groups was supported. The exact mean I.Q. scores, variances, and results of tests of significance are reported in Tables 3, 4, and 5.

Table 3. Numbers of pupils, means, variances, and results of test for significance between the mean of the control and experimental group of pupils having I.Q. scores greater than 110.

	Number of Pupils	Mean I.Q.	Variance	"z"
Experimental	32	119.66	39.39	1.33
Control	86	117.94	37.61	

$z .05 = 1.65$

Table 4. Number of pupils, means, variances, and results of test for significance between the mean of the control and experimental group for pupils having I.Q. scores between 90 and 110.

	Number of Pupils	Mean I.Q.	Variance	"z"
Experimental	86	99.98	37.11	1.06
Control	204	100.80	37.21	

$$z .05 = 1.65$$

Table 5. Number of pupils, means, variances and results of test for significance between the mean of the control and experimental group for pupils having I.Q. scores less than 90.

	Number of Pupils	Mean I.Q.	Variance	"z"
Experimental	23	82.74	24.02	.34
Control	59	82.22	29.04	

$$z .05 = 1.65$$

California Achievement Test

The California Achievement Test Battery was developed on the basis of sample testing in all forty-eight states and the District of Columbia prior to its printing in 1957.¹ As such, it is designed to provide valid and reliable grade equivalent scores in the areas of reading, arithmetic and language skills. Therefore, the test authors indicate that irrespective of the school, test scores on this battery will show the extent of pupil mastery of the fundamental skills in terms of grade placements,

¹Tiegs and Clark, op. cit.

based upon a carefully sampled national population.

All pupils in the experimental and control groups were administered the California Achievement Test Battery at the beginning of the study. This pre-test session was held during the first two weeks in October, 1963. The tests were administered and scored by individual classroom teachers. The assumption was made that the 141 pupils in the experimental and the 349 pupils in the control groups would not differ significantly in previous achievement in reading, arithmetic, or language skills.

Table 6 summarizes the mean grade equivalent scores, variances, and test for significance in the area of reading. The low "z" score of .22 indicates that the pupils in both the experimental and control groups achieved approximately equal scores in reading at the beginning of the sixth grade.

Pupils in the control group had a mean grade equivalent score of 5.94 in arithmetic compared with a mean grade equivalent score of 5.82 for the experimental group. Although pupils in the control group did have approximately one full month higher scores, this difference was not found to be significant at the level of confidence. Therefore, it is assumed that the two groups were equivalent in prior arithmetic achievement.

Pupils in the control group achieved grade equivalent score which was a full month higher than the experimental group in the area of language skills. However, this

difference was found not to be significant at the .05 level of confidence.

This information summarized in Tables 6, 7, and 8 indicate that the two groups were statistically equal in terms of prior achievement in reading, arithmetic, and language skills.

Table 6. Numbers of pupils, means, variances and results of test for significance between the mean of the control and experimental group in the area of reading.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	141	6.47	2.01	.22
Control	349	6.44	1.90	

$$z .05 = 1.65$$

Table 7. Numbers of pupils, means, variances and results of test for significance between the mean of the control and experimental group in the area of arithmetic.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	141	5.82	1.06	1.23
Control	349	5.94	.93	

$$z .05 = 1.65$$

The design of this study included a plan for analysis of sub-groups of pupils represented by above-average, average and below-average I.Q. scores. Therefore, it was necessary to conduct tests for difference of mean scores of pupils in these three I.Q. ranges in the areas of reading, arithmetic and language skills.

Table 8. Numbers of pupils, means, variances, and results of test for significance between the mean of the control and experimental group in language skills.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	141	6.21	1.95	1.03
Control	349	6.35	1.66	

$$z .05 = 1.65$$

Analysis of Tables 9, 10, and 11 indicate that pupils with I.Q. scores greater than 110 had achieved statistically similar grade equivalent scores in all three academic areas. Pupils in the experimental group achieved somewhat higher mean grade equivalent scores in reading than did pupils in the control group. In the areas of arithmetic and language skills, the mean grade equivalent scores for the pupils in the experimental and control groups differed less than one month. The results of the test for significance indicated a low difference in the mean grade equivalent scores. Therefore, it was assumed that the pupils with I.Q. scores of greater than 110 were alike in previous measured achievement in the experimental and control groups. A detailed summary of these findings are reported in Tables 9, 10, and 11.

Pupils having I.Q. scores between 90 and 110 also achieved statistically equal mean grade equivalent scores. The mean scores achieved by pupils in the control groups were slightly higher than the mean scores of pupils in the experimental group in the areas of arithmetic and language

Table 9. Numbers of pupils, means, variances, and test for significance in the areas of reading for pupils having I.Q. scores greater than 110.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	32	7.82	.92	.72
Control	86	7.68	1.00	

$$z .05 = 1.65$$

Table 10. Numbers of pupils, means, variances, and test for significance in the areas of arithmetic for pupils having I.Q. scores greater than 110.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	32	6.77	.46	.37
Control	86	6.71	.65	

$$z .05 = 1.65$$

Table 11. Numbers of pupils, means, variances and test for significance in the area of language skills for pupils with I.Q. scores greater than 110.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	32	7.35	1.11	.06
Control	86	7.36	1.30	

$$z .05 = 1.65$$

skills. Pupils in the control group had a mean grade equivalent score of 5.9 in arithmetic. Pupils in the experimental group had a mean grade equivalent score of 5.7 in arithmetic. The difference between the mean scores of the two groups in language skills was approximately one month. Pupils in the experimental group had a mean score of 6.1 while the pupils in the control group achieved a mean score of 6.2. Both the experimental and control groups had mean scores of 6.3 in the area of reading. The test for significance indicated that the two groups were statistically similar in each of the three areas. The exact results of these tests are reported in Tables 12, 13, and 14.

Table 12. Numbers of pupils, means, variances, and test for significance in the area of reading for pupils having I.Q. scores between 90 and 110.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	86	6.32	1.22	.10
Control	204	6.31	1.33	

$$z .05 = 1.65$$

Table 13. Numbers of pupils, means, variances, and test for significance in the area of arithmetic for pupils having I.Q. scores between 90 and 110.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	86	5.73	.72	.12
Control	204	5.91	.60	

$$z .05 = 1.65$$

Table 14. Numbers of pupils, means, variances, and test for significance in the area of language skills for pupils having I.Q. scores between 90 and 110.

	Number of Pupils	Mean Grade Equivalent	Variance	"z"
Experimental	86	6.16	1.25	.52
Control	204	6.23	1.12	

$$z .05 = 1.65$$

Pupils in the experimental group with I.Q. scores of less than 90 were also comparable to the pupils in the control group. The control group achieved a higher mean score in arithmetic and in language skills than pupils in the experimental group. The control group had a mean grade equivalent score of 4.9 in arithmetic, while the experimental group had a mean score of 4.8. A much greater difference between the two groups was found in the area of language skills. Pupils in the control group had a mean grade equivalent score of 5.2. Pupils in the experimental group had a mean grade equivalent score of 4.7. Although there was a difference of almost 5 months, it was not significant at the .05 level of confidence. The pupils with I.Q. scores of less than 90 were, therefore, assumed to be equal in measured academic achievement at the beginning of the study.

Table 15. Numbers of pupils, means, variances, and test for significance in the area of reading for pupils having I.Q. scores of less than 90.

	Number of Pupils	Mean Grade Equivalent	Variances	"z"
Experimental	23	5.13	2.19	.20
Control	59	5.08	1.09	

$$z .05 = 1.65$$

Table 16. Numbers of pupils, means, variances and test for significance in the area of arithmetic for pupils having I.Q. scores less than 90.

	Number of Pupils	Mean Grade Equivalent	Variances	"z"
Experimental	23	4.87	1.04	.42
Control	59	4.97	.67	

$$z .05 = 1.65$$

Table 17. Numbers of pupils, means, variances, and test for significance in the area of language skills for pupils having I.Q. scores less than 90.

	Number of Pupils	Mean Grade Equivalent	Variances	"z"
Experimental	23	4.79	2.02	1.44
Control	59	5.26	1.39	

$$z .05 = 1.65$$

Minnesota Teacher Attitude Inventory

The distribution of teaching talent between the experimental and control groups was of concern to the researcher, and in an attempt to determine possible difference, the Minnesota Teacher Attitude Inventory was used.

Each of the teachers involved in this study were requested to complete the Minnesota Teacher Attitude Inventory Scale.¹ At the end of the study, teachers were asked to complete the attitude scale. However, because of the number of teachers in the study it was assumed that a balance would be found among the teachers in the experimental and control classes. This testing data were not obtained until the completion of the study because of the desire to eliminate any influence upon how individuals taught their classes during the school year under study. The assignment of teachers was in no way influenced by this intended study. An analysis of the scores made by teachers is reported in Table 18. These findings indicate that little difference in teaching talent of the two classes was present.

¹Walter W. Cook, Carroll H. Leeds, and Robert Callis, Minnesota Teacher Attitude Inventory (New York: The Psychological Corporation, 1951).

Table 18. Numbers of teachers, means, variances and results of test for significance between the mean scores of teachers of experimental and control groups.

	Number of Teachers	Mean	Variance	"z"
Experimental Group	10	36.30	16	.02
Control Group	16	32.81	14	

$$z .05 = 1.65$$

The Pupil Attitude Scale

A pupil attitude scale was developed for use in this study. Inasmuch as all of the students involved in the study were to be sixth graders, it was constructed upon the opinions of other sixth grade pupils. The groups of pupils selected to provide information for construction of this scale were drawn from three elementary schools within the school district. None of these three schools was involved in any other part of this study.

In construction of the pupil attitude scale, a Lickert Method of Summated Ratings¹ was used. As suggested by Best, statements were gathered from a number of individuals. Approximately 90 sixth-grade pupils were presented 24 incomplete statements dealing with subjects, school, teachers and adults, and other children. The following topics were selected for inclusion in this list.

¹John W. Best, Research in Education (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1955), pp. 140-84.

<u>Subject</u>	<u>School</u>
1. Reading is	1. Homework is
2. Library books are	2. The best school is
3. My best subject	3. Working together is
4. Arithmetic	4. My school is
5. Science is	
6. English is	
7. Writing is	

<u>Teachers and Adults</u>	<u>Other Children</u>
1. Our principal	1. Other children
2. My teacher is	2. Other classes
3. Teachers are	3. My friends
4. My parents think	4. Our class is
5. Most grown ups	5. My classmates
	6. Other sixth grades

This list of statements was presented to each of the sixth grade pupils involved. They were instructed to complete the statements with whatever thought first entered their minds. A request was also made that pupils should attempt to respond to all items. Ample time was allocated for the pupils to complete the statements. In addition, assurance was given that the completed statements would not be seen by their teacher or principal, and that their responses would have no effect upon their classwork evaluation.

The administration of the sample questionnaire was done by the researcher in all instances. The completed statements from the three classes were then examined item by item. Only positive responses were recorded. Negative or meaningless responses were discarded. By this procedure, a total of twenty positive statements were selected. The selection was made to include expressions in each of four areas; subjects, school, teachers and adults, and other

children. These twenty items were then printed and presented to all sixth grade pupils included in this study. (See Appendix I.) The manner in which the pupil attitude scale was administered and scored is presented in various other parts of Chapters IV and V.

The Testing Sequence

As mentioned earlier in this chapter, all pupils had previously been administered the California Test of Mental Maturity. This test had been given in the spring preceding the time the study was to begin.

The pre-test in the areas of reading, arithmetic, and language skills was administered during the first two weeks of October. The post-test session in these same three areas was held during the final two weeks of May during the same school year.

Immediately following the post-test period, the attitude scale was given to all pupils involved in the study. During this time, information about the nature of the parents' employment was also obtained. Classroom teachers assisted with providing information on parental employment when questions arose. If there was incomplete information for any reason, permanent records were consulted.

During the first week in June, teachers were requested to complete the Minnesota Teacher Attitude Inventory. Teachers were identified as having taught a combination or

a regular classroom. No names were used on the answer sheets in order to eliminate the element of threat which could be of concern to some teachers.

The project extended over a period of seven months. The experimental period lasted from the time of the pre-test session in October, 1963, until the post-test session in May, 1964. During one week following the post-test session, pupils who had been absent for part of the achievement test battery or had not completed the pupil attitude scale were permitted to complete these tests.

Methods of Testing the Hypotheses

The problem of primary concern in this study was to compare the achievement of the experimental and control groups as measured by mean achievement scores on the California Achievement Test. Additional problems investigated were to determine whether pupils in any of three subgroup intelligence classifications achieved differently in the experimental and control classrooms. The general attitude of pupils in each of the two classroom situations was compared at the close of the school year. The following null hypotheses were tested:

1. There will be no difference in the mean gain scores of pupils in combination and regular classrooms in the areas of reading, arithmetic, and language skills.
2. There will be no difference in mean gain scores of pupils having I.Q. scores greater than 110, in combination and regular classrooms in the areas of reading, arithmetic, and language skills.

3. There will be no difference in mean gain scores of pupils having I.Q. scores between 90 and 110, in combination and regular classrooms, in the areas of reading, arithmetic, and language skills.
4. There will be no difference in mean gain scores of pupils having I.Q. scores less than 90, in combination and regular classrooms, in the areas of reading, arithmetic, and language skills.
5. There will be no difference in the expressed attitudes of pupils in combination and regular grades as recorded on a 20-item attitude scale.

The first problem investigated required the use of the "t" test to determine the degree of significance in the difference in mean achievement between the experimental and control group on the post-test. The mean gain was computed for each of the two groups by analysis of individual gain scores. These scores, along with the variance for each group, enabled a meaningful analysis to be made.

In investigating each of the other three areas dealing with the achievement of the sub-groups a similar comparison was made. The "t" test was used to analyze mean gain scores and variances for pupils having I.Q. scores greater than 110, between 90 and 110, and less than 90.

The attitude scale was designed so that a pupil marked a negative, or a neutral response to each item. All neutral scores were discarded. Only positive and negative responses were utilized. This enabled an analysis by using chi-square tables in a two-by-two classification. A test for significance was carried out on each of the 20 items on the attitude scale.

Summary

All of the pupils included in this study were assigned to either a regular sixth grade or a combination fifth and sixth-grade classroom. Pupils in both classroom situations were examined on the basis of socio-economic background, I.Q. scores, and previous achievement. This examination revealed that the two groups were similar in each of these areas. In addition, the teachers of both groups were evaluated by means of their responses to the Minnesota Teacher Attitude Inventory. The scores made by the teachers of both regular and combination classrooms were found to be statistically alike.

Pupils in both classroom situations were found to have similar socio-economic backgrounds, I.Q. scores, and past achievement, as well as similar teachers. Therefore, the post-test data should enable an assessment to be made of differences growing from grouping children into regular and combination classrooms.

CHAPTER IV

ANALYSIS OF THE DATA

The final analysis of results is based upon the test data and the pupil attitude scales which were completed by 490 sixth-grade pupils. A total of 141 sixth-grade pupils from 10 combination fifth-and sixth-grade classrooms made up the experimental group. The control group was composed of 349 sixth-grade pupils from 16 regular classrooms. All pupils completed the California Test of Mental Maturity, the pre- and post-test batteries of the California Achievement Test, and the pupil attitude scale which was constructed for this study.

The analysis of the data is divided into three sections. The first section of the analysis deals with results of tests for significance in the mean gain scores between all pupils in the experimental and control groups. In the second section of the analysis, the results of tests of significance in mean gain scores for the sub-groups are reported. This section presents mean-gain scores in reading, arithmetic, and language skills for pupils having below average, average, and above average I.Q. scores. The third section of this chapter reports the results of tests for significance in attitudes of all pupils in the experimental and all pupils in the control group.

Difference in Mean Gain Scores of
Experimental and Control Group

A primary goal in this study was to compare the academic growth of sixth-grade pupils in combination sixth-grade classrooms with similar pupils in regular sixth-grade classrooms. The "t" test¹ was used to test the first null hypothesis, stated in Chapter III, that there would be no difference in mean gain scores between these two groups of pupils in the areas of reading, arithmetic, and language skills. Prior analysis of achievement revealed that both groups of pupils were statistically equal in learning at the beginning of the study. This likeness was found to be consistent in reading, arithmetic, and language skills.

Mean gain scores and tests for significance for the two groups of pupils on the post-test are summarized in Tables 19, 20, and 21. An analysis of these tables indicates that pupils in regular sixth-grade classrooms achieved somewhat higher mean gain scores in reading and arithmetic. These pupils had a mean gain score of .61 months in reading compared to a mean gain of .56 months for pupils in the combination classrooms. The pupils in the regular classrooms achieved a mean gain of .79 months in arithmetic while pupils in combination classrooms had a mean gain of .73 months. A greater gain in language skills was registered for pupils in combination classrooms than in regular classrooms. Pupils in combination classrooms

¹Allen L. Edwards, Statistical Methods for the Behavioral Sciences (New York: Holt, Rinehart and Winston, 1961), Chapter 14.

had a mean gain of .88 months compared with a gain of .83 months for pupils in regular classrooms.

Table 19. Numbers of pupils, means, and variances and results of tests for the significance of the difference in mean gain scores in the area of reading.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	141	.56	.34	.75
Control	349	.61	.53	

$t .05 = 1.97$

Table 20. Numbers of pupils, means, and variances and results of tests for the significance between main gain scores in the area of arithmetic.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	141	.73	.48	.94
Control	349	.79	.43	

$t .05 = 1.97$

Table 21. Numbers of pupils, means, and variances for the results of tests for the significance between mean gain scores in the area of language skills.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	141	.88	.46	.67
Control	349	.83	.53	

$t .05 = 1.97$

None of the differences between the two groups was found to be significant.

Differences in Mean Gain Scores
for the Sub-Groups

A closer look was taken at those pupils with I.Q. scores of less than 90, between 90 and 110, and those having I.Q. scores greater than 110. Tables 22, 23, and 24 summarize the data for pupils having I.Q. scores of less than 90. Pupils in regular sixth-grade classrooms had a mean gain score of .80 months in reading compared to a mean gain of .56 months for pupils in combination classrooms. This means that pupils in the regular classrooms made a gain of .24 months more than did like pupils in the combination classrooms. This difference in achievement did approach a significant level of difference; however, it was not great enough to be acceptable in this study.

A mean gain in arithmetic of .66 months was made by the pupils in regular classrooms, while pupils in combination classrooms had a mean gain of .65 months. The pupils in the regular classrooms gained .01 months more in arithmetic than did like pupils in the combination classrooms.

Pupils in combination classrooms achieved a mean gain score of .76 in language skills while their counterparts in regular combination classrooms achieved a mean gain of .83 months. Pupils in regular classrooms gained .08 months more than pupils in combination classrooms during the experimental period.

Although greater gains were made by pupils in regular classrooms in all three areas, these differences

Table 22. Numbers of pupils, means, variances and results of test for significance in mean gains in reading for pupils with I.Q. scores of less than 90.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	23	.56	.34	1.51
Control	59	.80	.44	

$t .05 = 1.99$

Table 23. Numbers of pupils, means, variances and results of test for significance of the difference in mean gains in arithmetic for pupils with I.Q. scores less than 90.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	23	.65	.62	.07
Control	59	.66	.23	

$t .05 = 1.99$

Table 24. Numbers of pupils, means, variances, and results of test for significance of the difference in mean gains in language skills for pupils with I.Q. scores less than 90.

	Numbers of Pupils	Mean Gain	Variance	"t"
Experimental	23	.76	.51	.42
Control	59	.83	.65	

$t .05 = 1.99$

were not found to be statistically significant. The findings support the second null hypothesis and it is accepted.

The third null hypothesis stated that pupils with I.Q.'s between 90 and 110 would achieve similar mean gain scores in reading, arithmetic, and language skills regardless of placement in regular or combination classrooms. Analysis of Tables 25, 26, and 27 support this hypothesis. These pupils in regular classrooms had a mean gain score in reading of .63 months while comparable pupils in combination classrooms had a mean gain score of .61 months. In the area of arithmetic, pupils with average I.Q.'s in regular classrooms had a mean gain score of .76 months compared with a mean gain of .76 months for similar pupils in combination classrooms. A gain of .88 months was achieved in language skills by these pupils in regular classrooms. Those in combination classrooms had a mean gain of .89 months in language skills. The differences which were found between the two groups of pupils failed to approach a level of statistical significance. The third null hypothesis is therefore accepted.

Table 25. Numbers of pupils, means, variances and results of test for the significance in mean gains in reading for pupils with I.Q. scores between 90-110.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	86	.61	.42	.28
Control	204	.63	.33	

$$t .05 = 1.97$$

Table 26. Numbers of pupils, means, variances, and results of test for significance of the difference in mean gains in arithmetic for pupils with I.Q. scores between 90-110.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	86	.76	.54	.01
Control	204	.76	.41	

$$t .05 = 1.97$$

Table 27. Numbers of pupils, means, variances and results of test for significance of the difference in mean gains in language for pupils with I.Q. scores between 90-110.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	86	.89	.42	.14
Control	204	.88	.61	

$$t .05 = 1.97$$

The fourth null hypothesis stated that no difference would be found in measured achievement between the experimental and control group of pupils having I.Q. scores greater than 110. Tables 28, 29, and 30 summarize the findings for these pupils. Almost identical gains were made by the two groups in the area of reading. Pupils in the regular classrooms had a mean gain of .44 months while pupils in combination classrooms had a mean gain of .44 months. In the area of arithmetic, pupils in regular classrooms had a mean gain score of .96 months compared with a gain of .78 months for pupils in combination classrooms. Pupils in regular classrooms had a mean gain of .72 months

in language skills while pupils in combination classrooms had a gain of .89 months. Again, the differences in the gain scores of pupils with I.Q. scores greater than 110 were not great enough to warrant the rejection of the null hypothesis. The data support the statement that no difference would be found between these two groups of pupils in reading, arithmetic, or language skills.

Table 28. Numbers of pupils, means, variances and results of test for the significance of the difference in mean gains in reading for pupils with I.Q. scores greater than 110.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	32	.44	.45	.00
Control	86	.44	.32	

$$t .05 = 1.98$$

Table 29. Numbers of pupils, means, variances and results of test for the significance of the difference in mean gains in arithmetic for pupils with I.Q. scores greater than 110.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	32	.78	.61	1.09
Control	86	.96	.56	

$$t .05 = 1.98$$

Table 30. Numbers of pupils, means, variances and results of test for the significance of the difference in mean gains in language for pupils with I.Q. scores greater than 110.

	Number of Pupils	Mean Gain	Variance	"t"
Experimental	32	.89	.47	1.27
Control	86	.72	.40	

$$r .05 = 1.98$$

Results of Pupils Attitude Scale

Each of the 490 sixth-grade pupils responded to the 20 items on the pupil attitude scale. The scale was constructed with a response column which was divisible into five one-inch graduations. Positive answers were those marks which were in the two-inch area of the extreme left of the response column. Negative answers were those marks which were on the two-inch area on the extreme right of the response column. Tallies falling in the middle were viewed as being neutral and were not recorded. In this manner, all recorded responses were either positive or negative.

The number of positive and negative responses of pupils in combination classrooms were compared with the response of pupils in regular classrooms by use of a two-by-two chi square table.¹ Results of these series of tests indicated that pupils in the combination and regular classrooms did not differ significantly in their attitudes on

¹Edwards, op. cit., Chapter 18.

any topic included in the pupils attitude scale. Therefore, the null hypothesis, which stated that no difference would be found in the attitudes of pupils in combination and regular classrooms, is accepted. Results of the pupil attitude scale and tests for significance are summarized in Table 31.

Their results strongly indicate that pupils are not prone to think negatively toward school, subjects, teachers, adults, or other children because of placement in combination classrooms.

Summary

The data in Tables 19 through 31 show that no significant difference in measured academic achievement or attitudes toward school was found to exist between pupils in regular or combination classrooms. When the achievement of the entire group of 141 pupils in combination classrooms was compared with the gain made by the 349 pupils in regular sixth-grade classrooms, no significant difference was found. In addition, there was no pattern in the differences which were found. Pupils in regular sixth-grade classrooms made slightly greater mean gains in reading and in arithmetic than did pupils in combination classrooms. However, a greater gain was made in language skills by pupils in combination classrooms than was made by pupils in regular classrooms.

An examination of sub-groups of pupils was made possible by assigning all students to one of six sub-groups

Table 31. Pupil response and test for significance on twenty items in the attitude scale.

	Experimental		Control		χ^2
	Positive	Negative	Positive	Negative	
Item 1	129	12	320	24	.10
Item 2	87	34	247	86	.02
Item 3	94	25	232	46	.01
Item 4	118	13	302	39	.09
Item 5	91	18	204	53	.58
Item 6	126	15	318	29	.39
Item 7	94	39	212	70	.73
Item 8	123	11	300	18	.64
Item 9	126	14	267	32	.00
Item 10	121	9	260	17	.01
Item 11	95	37	201	88	.22
Item 12	131	10	306	28	.08
Item 13	98	28	196	54	.00
Item 14	129	11	315	24	.02
Item 15	87	26	186	58	.00
Item 16	115	16	289	38	.03
Item 17	82	23	186	63	.30
Item 18	123	16	298	29	.51
Item 19	117	14	264	42	.44
Item 20	61	56	141	117	.12

$$\chi .95^2 = 3.84$$

according to I.Q. scores. These groups ranged in size from 23 to 204.

A total of 23 pupils in combination classrooms were found to have I.Q. scores of less than 90. A total of 59 pupils in regular classrooms had I.Q. scores of less than 90. In all three areas--reading, arithmetic, and language skills, slightly greater mean gain scores were recorded for pupils in regular classrooms. Although none of these differences were statistically significant at the .05 level of confidence, the larger gain was consistently in favor of the control group.

The largest sub-group was made up of pupils having I.Q. scores between 90 and 110. There was a total of 86 pupils from combination classrooms and 204 pupils from regular sixth-grade classrooms. Slightly greater gain scores were made by pupils in regular classrooms in reading and arithmetic. However, the pupils in combination classrooms had a greater gain score than pupils in regular classrooms in the area of language skills. The gain scores of these two groups were nearly identical in the area of arithmetic, with both groups having a gain of slightly over seven and six-tenths of a month. None of the differences approached a significant difference. In addition, the gains which were made did not clearly favor either the experimental or control group.

There were 32 pupils in combination classrooms and 86 pupils in regular classrooms having I.Q. scores greater than 110. These pupils made nearly identical gains in

reading while pupils in regular classrooms made greater gains in arithmetic than did pupils in combination classrooms. A greater mean gain was recorded for pupils in combination classrooms than was found for pupils in regular classrooms. As in case of the two previously mentioned sub-groups, the differences which were found were not statistically significant. The difference in mean gain scores were not universally in favor of either group of pupils.

Although not statistically significant, it is noted that greater mean gain scores in reading were made by the control group in every instance. In addition, and recognizing that at times the scores differed but slightly, the same was true in arithmetic where a consistent pattern of slightly higher achievement was recorded by pupils in regular sixth-grade classrooms. The opposite was found in language skills. Only in the case of pupils having I.Q. scores of less than 90 was a greater gain made by pupils in regular classrooms. In all other instances, greater mean gain scores were achieved by pupils in combination classrooms.

An analysis of pupil reaction toward the twenty items included in the pupil attitude scale revealed little difference between the two groups. The pupils in regular classrooms differed little in expressing positive and negative attitudes toward any item included on the attitude scale. None of the differences in expression of the two groups approached a level which was significant.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

Purpose of the Study

The purpose of this study was to determine the extent to which pupil assignment to combination classrooms would effect their academic progress and attitudes. More specifically, it was designed to measure the academic progress of sixth-grade pupils in reading, arithmetic, and language skills. This progress, when compared with the progress made by pupils in regular sixth-grade classrooms, would then provide insight into learning in combination classrooms. It would also provide insight into the learning of average, above-average and below-average pupils in combination grades. In addition, it should provide additional information about the relative merits of grade classification of pupils in elementary schools.

Another purpose of the study was to determine if pupils attitudes toward school, other children, subjects, or adults was effected by their placement in combination classrooms. This aspect of the study was viewed as important in extending the analysis of pupil learning beyond the

specifically identified subject matter areas of reading, arithmetic, and language skills.

The dependent factor in the study was the modification of graded classrooms for fifth and sixth-grade pupils. Therefore, the findings should provide information about possible effects of grouping pupils other than on an age-grade basis. Practice in placement of pupils in combination classrooms differs from building to building and between school systems. This study included children with average, above-average and below-average intelligence test scores. An analysis of the academic gains made by individuals representative of these three levels of ability will be made. This should provide insight into the learning of children of various ability levels who are assigned to heterogeneously grouped combination classrooms.

Procedure

The sixth grade, the terminal grade in the K-6 elementary school, was selected as the sample group in this study. A total of 490 sixth-grade pupils were involved. Of this number, 349 pupils were assigned to regular sixth-grade classrooms. The remaining 141 pupils were assigned to combination classrooms. The pupils in combination classrooms were in 10 different rooms, each of which had a group of sixth-grade pupils and a group of fifth-grade pupils. The number of sixth-grade pupils in the 10 classrooms varied but there was an average of 30 pupils in both the

combination and the regular sixth-grade classrooms. The pupils in regular sixth-grade classrooms were in 16 different rooms.

The two groups of pupils had approximately equal socio-economic backgrounds. They were found to represent a broad span of the socio-economic backgrounds from high to low levels. Classification of pupils according to socio-economic levels was done on the basis of the occupation of their parents.

An analysis of I.Q. scores for both groups was also made. This indicated that the two groups were essentially equal in measured ability. The pupils in combination classrooms were found to have a mean I.Q. score of approximately 101. Pupils in regular sixth-grade classrooms also had a mean I.Q. score of approximately 101.

The two groups of pupils were found to be statistically alike in prior achievement in each of the three areas measured. Students in combination classrooms were found to have a mean score of 6th grade, 4th month in reading, 5th grade, 8th month in arithmetic and 6th grade, 2nd month in language skills. Pupils in regular classrooms had a mean score of 6th grade, 4th month in reading, 5th grade, 9th month in arithmetic, and 6th grade, 3rd month in language skills. Although slight differences were found between the two groups, none of these differences approached a level which was statistically significant.

Throughout the academic year, no attempt was made to structure the teaching procedure in any classroom. All of the 26 teachers conducted their classrooms in a manner which was deemed appropriate by themselves, their co-workers, their supervisors, and their administrators. The study did not dictate the manner in which pupils were to be assigned to classrooms or the way they would be grouped or instructed.

At the conclusion of the study, the 490 pupils were again tested in the areas of reading, arithmetic, and language skills. In addition, the pupils were asked to respond to an attitude inventory which was designed to measure attitudes of sixth grade pupils toward school, subjects, teachers and adults, and other children.

The 26 teachers involved in this study were also asked to respond to the Minnesota Teacher Attitude Inventory. This was included as a measure to determine likeness between the group of teachers of combination classrooms and those teachers who taught regular sixth-grade classrooms.

Major Findings

The results of the test scores achieved by the pupils in this study clearly indicated that assignment to regular or combination classrooms had neither a positive nor negative effect upon measured learning. Pupils in regular classrooms achieved a mean gain of approximately six months in reading, while pupils in combination classrooms also achieved a mean gain of almost six months. The slight

difference which was evident favored the pupils in regular sixth-grade classrooms but was not significant at the 5 per cent level.

A mean gain of almost eight months was made in arithmetic by pupils in regular sixth-grade classrooms. A gain of over seven months was made in arithmetic by pupils in combination classrooms during the same period. Again, the gain in this area was in favor of pupils in regular classrooms but was not significant at the 5 per cent level.

In the area of language skills, pupils in regular classrooms achieved a mean gain of over eight months. Pupils in combination classrooms also had a mean gain of greater than eight months. Unlike the results in reading and arithmetic, the greater gain in language skills was made by pupils in the combination classrooms, however the difference was not significant at the 5 per cent level.

In each of the three areas, reading, arithmetic, and language skills, then, differences were found but none was statistically significant. In addition, the learning differences did not consistently favor either group of pupils.

A close likeness was found in the responses of pupils in both groups to the twenty item pupil attitude scale. Analysis of pupil responses indicated that neither groups was more positive nor negative on any item included in this scale.

Additional Findings

All pupils in both the combination and regular sixth-grade classrooms were divided into sub-groups according to I.Q. scores. This made it possible to compare mean-gain scores in reading, arithmetic, and language skills for pupils classified as having below-average, average, and above-average ability.

In no instance was there a statistically significant difference in the achievement of any one of these sub-groups. Pupils with below-average I.Q. scores in regular classrooms achieved slightly higher mean-gain scores in all three areas than did like pupils in combination classrooms. This was the one sub-group which indicated a pattern in favor of one classroom situation. Pupils with above-average and average I.Q. scores in regular sixth-grade classrooms scored slightly higher mean-gain scores in reading and arithmetic. However, in both of these sub-groups pupils who were in combination classrooms achieved higher mean-gain scores in language skills.

Conclusions

The evidence gathered from the test results and the pupil attitude scale supports the following conclusions:

1. Sixth-grade pupils who are assigned to combination fifth and sixth-grade classrooms will make academic progress in reading, arithmetic, and language skills, equal to the progress made by students in regular sixth-grade classrooms.

2. The attitudes of sixth grade pupils in combination classrooms are as positive as are the attitudes of pupils in regular classrooms.
3. Sixth grade pupils with below-average, average, and above-average ability are neither at a decided advantage or disadvantage in measured learning as a result of placement in a heterogeneous combination fifth and sixth-grade classroom.

These conclusions support the original premises upon which this study was based. As was stated in Chapter I and supported by the literature reported in Chapter II of this study, pupil learning is not sharply divided by grade lines as are found in the graded elementary school. Learning in skill areas such as reading, arithmetic, and language is dependent upon a number of factors. The readiness of the learner is an important factor in his learning and this readiness is not necessarily related to the grade level or organizational pattern in which a pupil finds himself. In addition, the maturity of a student will have an effect upon his learning in the classroom. A mature pupil who has the appropriate readiness, ability, and opportunity to learn academic skills which are presented will achieve as well in one organizational plan as another. Therefore, it seems reasonable to accept the findings that such sixth-grade pupils in combination classrooms achieve as highly as similar pupils in regular classrooms. This would be true for pupils of various ability levels, whether they are average, high or low. The effect of a change in organizational pattern is mechanical rather than educational and will not necessarily result in any change in the learning of students

who are involved.

The combining of two grades into one classroom unit indicates no gain will be encountered in the learning of the pupils. However, this study was not designed to measure other possible advantages which might occur if schools would modify the traditional graded classroom concept. It is possible that social and peer adjustment might be enhanced by groupings such as the combination classrooms. Opportunity for development of leadership skills for some children might be greatly enhanced by placement in a combination classroom. A child who has not established himself as a leader in his peer group at his assigned age-grade level might be able to develop this skill in a combination classroom. The opportunity for improvement of self-image might be present when a wider chronological age association is made in a combination classroom. An elementary school child who is less ready for previously identified grade level skills and social adjustments could find a better learning environment in a classroom which crossed rigid age-grade boundary lines. The learning potential for some children could be enhanced by the opportunity to pursue goals which are not identified in the skill areas of the curriculum.

This study would refute the use of I.Q. scores as a valid indicator for success in combination grade assignments with heterogeneously grouped students. It would also pose the possibility that an improved learning environment for

children within schools might be possible without loss in academic skill attainment. Teachers and administrators might well ponder a multitude of other reasons for placement of pupils in combination classrooms and make decisions on the basis of other criteria.

The teachers and materials in this study tended to be grade-level oriented. All of the text materials and tests in this study were of this nature. It is possible that changes in one or more of these areas could result in a significant change in pupil learning. The pupils who were measured for academic progress in this study were oriented toward a specific set of goals. While it is true that both groups of pupils achieved the same goals, it is possible that other goal identification should be sought. Such changes in curriculum materials and orientation could provide all children with a more meaningful education and broader education.

Implications

For Administrators

The data compiled and reported in this study should add support to administrators who wish to provide leadership in modification of the graded classroom. The findings reported in this study indicate that combinations of fifth and sixth-grade children into a single classroom unit will not handicap the academic progress of the sixth-grade pupils. With this as a basis, it should be possible to expand the

concept of cross-grade or multi-age grouping when such modifications would seem to have academic social benefits to pupils.

If an administrator wishes to balance teacher-pupil ratio in a graded school, combination classrooms should exist as a sound and realistic solution. A balance between class size in a building can be maintained by formation of combination classrooms. As teachers view class size as a matter of vital importance in working with children, combination classrooms provide a workable solution to uneven grade enrollments. The findings of this study would support such grade combinations on the basis that the academic progress of pupils would not be hindered.

The attitudes of pupils toward school in general should not be adversely affected by assignment of individuals to combination classrooms. Administrators can expect that such a placement of children will not cause a difference in their attitude toward school or school work. The attitudes of these children can be expected to be on a par with the attitudes of pupils in regular classrooms.

For Teachers

Teachers assigned to teach combination classrooms should not consider that this situation will automatically penalize students. They can expect pupils to make academic progress equal to other children in regular grade sections. This would be true for all normal pupils assigned to the

heterogeneous classroom whether their I.Q. scores were average, below average, or above average. The evidence in this study would support the idea that any child in a combination classroom could be expected to achieve as highly as a similar child in a regular classroom.

For Parents

Parents should not feel that their children will be at a disadvantage if placed in a combination classroom. Neither the academic progress of pupils nor their attitudes toward school will be greatly effected by such a placement. A child in a combination classroom can be expected to achieve as highly in reading, arithmetic, and language skills as he would achieve if placed in a regular grade assignment. The individual pupil will have attitudes toward school subjects and other people similar to the attitudes of other children in regular classrooms of that school.

Social advantages for individual placement in sixth-grade combination classrooms might be apparent in some instances. These advantages should be considered in light of the apparent lack of other disadvantages which will be encountered. Therefore, if there seems to be some other reason for placement of a child in a combination classroom, this should be given serious consideration. It might be possible that real benefits could be gained while there is no evidence to support any limitations in achievement or pupil attitudes.

For Further Research

The problems encountered in the course of this study, and the data gathered suggest other areas where research seems necessary.

1. The possibilities of advantage to pupils by multi-age groupings have been expressed by many educators. This study indicated that there are no decided disadvantages in achievement or pupil attitudes for sixth-grade pupils in combination classrooms. Therefore, additional information concerning possible advantages or disadvantages for multi-age groupings should be sought.
2. It would seem highly probable that all of the teachers in this study were influenced to a great degree by a grade-goal concept of teaching. Graded materials were used, and all classrooms were organized on a grade standard basis. Therefore, a need exists to evaluate learning of sixth-grade pupils in classroom situations which ignore the grade concept and place greater emphasis upon the progress of individual students.
3. Although no statistically significant differences were found in this study, some trends were evident. The following questions are raised and seem worthy of further investigation:
 - a. Why did pupils with I.Q. scores of less than 90 consistently do better in regular classrooms?

- b. Why did pupils in regular classrooms consistently achieve higher scores in the area of reading?
 - c. Why did pupils in regular classrooms consistently achieve higher scores in the area of arithmetic?
 - d. Why did pupils with above-average and average ability achieve higher scores in language skills when placed in combination classrooms?
4. There is a continued need for improved instruments as tools for research studies. A need exists for a method of appraising (1) teaching effectiveness, (2) pupil learning outside of the skill areas identified in this study, such as leadership and creativity.
5. An investigation of the lower grade level groups in a combination might be undertaken.
6. It would be of value to study the effect of pupil placement in combination grades at other grade levels.

BIBLIOGRAPHY

Books

- A Look at Continuity in the School Program. Association for Supervision and Curriculum Development, 1958 Year-book: The Association, 1958.
- Barber, Bernard. Social Stratification. New York: Harcourt, Brace, and Company, 1957.
- Beauchamp, George A. Basic Dimensions of Elementary Method. Boston: Allyn and Bacon, Inc., 1959.
- Beck, Robert H., Cook, Walter W., and Kearney, Nolan C. Curriculum in the Modern Elementary School. New York: Prentice-Hall, Inc., 1953.
- Best, John W. Research in Education. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1955.
- Caswell, Hollis L. and Foshay, Arthur W. Education in the Elementary School. 3rd ed.; New York: American Book Company, 1957.
- Cronbach, Lee J. Educational Psychology. New York: Harcourt, Brace and Company, 1954.
- Dean, Stuart E. Elementary School Administration and Organization. Washington, D.C.: U.S. Government Printing Office, 1960.
- Dixon, Wilfrid J. and Massey, Frank J. Jr. Introduction to Statistical Analysis. New York: McGraw-Hill Book Co., 1957.
- Educational Psychology. Ed., Arthur P. Coladarci. New York: The Dryden Press, Inc., 1955.
- Edwards, Allen L. Statistical Methods for the Behavioral Sciences. New York: Holt, Rinehart and Winston, 1961.
- Elementary School Organization. National Elementary Principal, The National Elementary School Principals' Yearbook. Washington, 1961.
- Frandes, Arden N. How Children Learn - An Educational Psychology. New York: McGraw-Hill Book Company, Inc., 1957.

- Good, C. V. (ed.). Dictionary of Education. 2d ed.; New York: McGraw-Hill Book Company, Inc., 1959.
- Goodlad, I. John, and Anderson, Robert H. The Nongraded Elementary School. New York: Harcourt, Brace and Company, 1959.
- Havinghurst, Robert J. Human Development and Education. New York: Longmans, Green, and Co., 1953.
- Herrick, Virgil E., Goodlad, John I., Estvan, Frank J., and Eberman, Paul W. The Elementary School. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1956.
- Lane, Howard and Beauchamp, Mary. Human Relations in Teaching. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1955.
- Manning, Duane. The Qualitative Elementary School. New York: Harper and Row, Publishers, 1963.
- Mussen, Paul H., Conger, John J., Kagan, Jerome. Child Development and Personality. New York: Harper and Row, Publishers, Inc., 1963.
- Otto, Henry J. Elementary School Organization and Administration. New York: Appleton-Century-Crofts, Inc.; 1954; 3rd ed.
- Stratemeyer, Florence B., Forkner, Hamden L., McKim, Margaret G., and Passow, Harry A. Developing a Curriculum for Modern Living. New York: Teachers College Press, 1957.

Articles

- Adams, Joseph J. "Achievement and Social Adjustment of Pupils in Combination Classes Enrolling Pupils of More than One Grade Level," Journal of Educational Research, XLVII (October, 1953), p. 155.
- Anderson, Robert H. and Goodlad, John I. "Self-Appraisal in Nongraded Schools: A Survey of Findings and Perceptions," Elementary School Journal, LXII (February, 1962), pp. 261-69.
- Bahner, J. M. "Grouping Within A School," Childhood Education, XXXVI (April, 1960), pp. 354-56.
- Brinkman, Albert R. "Now It's the Ungraded School," PTA Magazine, LV (June, 1961), pp. 24-26.

- Carlson, Wesley H. "Interage Grouping," Educational Leadership, XV, (March, 1958), pp. 363-68.
- Cook, Desmond L. "The Hawthorne Effect in Educational Research," Phi Delta Kappan, XLIV (December, 1962), pp. 116-22.
- DiPasquale, Vincent. "Schools Without Grades," Better Homes and Gardens, XXXIII (September, 1955), pp. 28.
- Eldred, Donald N. and Hillson, Maurie. "Nongraded School and Mental Health," Elementary School Journal, LXIII (January, 1963), pp. 218-22.
- Gilbert, Jerome H. "Multigraded Developmental Plan Focuses on Pupil Advancement," Chicago Schools Journal, XLIII (February, 1962), pp. 209-14.
- Goodlad, John. "Promising Practices in Nongraded Schools," Educational Digest, XXVII (October, 1961), pp. 8-10.
- Hartzler, Ruth. "Experimenting with Split Grades," Ohio Schools, XXXVII (May, 1959), p. 32.
- Hull, J. H. "Multiple-Grade Teaching," The Nation's Schools, LXII (July, 1958), pp. 33-38.
- Hunter, M. W. "Two Grades in One Room!" Instructor, May, 1942, p. 8.
- Kelly, Florence C. "Doing Away With Grade Levels," National Education Association Journal, XXXVII (April, 1948), pp. 222-23.
- Lamers, William M. "Milwaukee Ungraded Primary Plan," American School Board Journal, CXLV (November, 1962), pp. 11-13.
- Petery, Mercedes. "Teaching a Double Grade? It's a Real Challenge," Instructor, LXIX (September, 1959), pp. 19 +.
- Tucker, Marion B. "The Shoe Didn't Fit," National Education Association Journal, XLV (March, 1956), pp. 159-61.
- Vienvenu, Harold J. and Martyn, Kenneth A. "Why Fear Combination Classes," American School Board Journal, CXXX (April, 1955), pp. 33-34.
- "What About Combination Grades?" Childhood Education, XXXII (December, 1955), pp. 187-88.
- Wheat, L. B. "Flexible Primary School," The Nation's Schools, XXII (October, 1938), pp. 26-28.

Unpublished Materials

- Carbone, Robert F. "Achievement, Mental Health, and Instruction in Graded and Nongraded Elementary School." Unpublished Doctor's dissertation, University of Chicago, 1961.
- Chance, Earl Stanley. "An Analysis of Some Effects of Multiple-Grade Grouping in an Elementary School." Unpublished Doctor's dissertation, University of Tennessee, 1961.
- Cook, Walter W., Leeds, Carroll H. and Callis, Robert. Minnesota Teacher Attitude Inventory. New York: The Psychological Corporation, 1951.
- Foshay, Arthur W. "Interage Grouping in the Elementary School." Unpublished Doctor's dissertation, Teachers College, Columbia University, 1948.
- Knight, E. E. "A Study of Double Grades in New Haven City Schools." Unpublished Doctor's dissertation, Yale University, 1935.
- Rehwoldt, Walter. "Aspects of Multigrade Teaching in the Elementary School." Unpublished Doctor's dissertation, University of Southern California, Los Angeles, 1957.
- Sullivan, Elizabeth, Clark Willis W. and Tiegs, Ernest W. The California Short-Form Test of Mental Maturity. Monterey, California: California Test Bureau, 1957.
- Tiegs, Ernest W. and Clark, Willis W. California Achievement Tests. Monterey, California: California Test Bureau, 1957.
- Yunghams, Ernest E. "The Effects of Class Organization and Time on the Teacher's Ability to Classify His Pupils With Respect to Three General Personality Traits." Unpublished Doctor's dissertation, Indiana University, 1959.

APPENDICES

APPENDIX I

Name _____
 (first) (last)

Father's occupation _____

Mother's occupation _____

Place a mark (x) on the line below each statement. If you agree with the statement, place your x on the far left end of the line. If you disagree with the statement, place your x on the far right end of the line. You mark an x at any place on the line depending on the degree to which you agree or disagree with the statement.

1. Reading is important.

(Agree) _____ (Disagree)

2. Other classes in our building are nice too.

(Agree) _____ (Disagree)

3. Teachers are understanding.

(Agree) _____ (Disagree)

4. My parents think I am doing well in school.

(Agree) _____ (Disagree)

5. Working in groups can be effective.

(Agree) _____ (Disagree)

6. Arithmetic is an important subject.

(Agree) _____ (Disagree)

7. Other sixth grades are much like ours.

(Agree) _____ (Disagree)

8. Our class has a nice teacher.

(Agree) _____ (Disagree)

9. My parents think we have a good school.
(Agree) _____ (Disagree)
10. My friends are kind to me.
(Agree) _____ (Disagree)
11. School work is a challenge.
(Agree) _____ (Disagree)
12. My school is a good one.
(Agree) _____ (Disagree)
13. We have the best teacher in the building.
(Agree) _____ (Disagree)
14. My parents think I have a good teacher.
(Agree) _____ (Disagree)
15. My classmates are cooperative.
(Agree) _____ (Disagree)
16. Reading is enjoyable.
(Agree) _____ (Disagree)
17. I go to the best school in town.
(Agree) _____ (Disagree)
18. Teachers are helpful.
(Agree) _____ (Disagree)
19. Science is an interesting subject.
(Agree) _____ (Disagree)
20. Our class is the best class in town.
(Agree) _____ (Disagree)