# A COMPARISON OF KINDERGARTEN CHILDREN IN MULTIGRADE AND TRADITIONAL SETTINGS ON SELF-CONCEPT, SOCIAL-EMOTIONAL DEVELOPMENT, READINESS DEVELOPMENT, AND ACHIEVEMENT

by

Sidney Belt Harvey

Dissertation submitted to the Graduate Faculty of the
Virginia Polytechnic Institute and State University
In partial fulfillment of the requirements for the degree of
DOCTOR OF EDUCATION
in
Educational Administration

APPROVED:

D. J. Parks, Chairman

A. P. Johnston

D. S. Biskin

J. W. Maxwell

R. B. Frary

May, 1974

Blacksburg, Virginia

## ACKNOWLEDGMENTS

The writer wishes to acknowledge his indebtedness to a number of persons who have contributed significantly to the completion of this study.

To the chairman of my committee and director of the thesis, Dr. David J. Parks, goes my deep appreciation for his interest in my career and his continued guidance and encouragement.

To the other members of my committee, Dr. A. P. Johnston, Dr. J. W. Maxwell, Dr. D. S. Biskin, and Dr. R. B. Frary for their help and encouragement goes my gratefulness.

To , Superintendent of Grayson County Schools; , Elementary Supervisor; and , School Psychologist goes my appreciation for their assistance in carrying out this study.

To the school administrators and kindergarten teachers who cooperated in this study goes a special debt of gratitude.

To my wife, , and sons, and , a debt of gratitude is most humbly recognized, for through them completion of this research has been possible.

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# CHAPTER I

## THESIS

Never before has so much attention been directed to the area of early childhood education. Even before the enactment of legislation providing federal aid to support preschool programs, there was a genuine ferment of interest in preschool education. On June 23, 1972, the Virginia State Board of Education adopted Standards of Quality and Objectives for Public Schools in Virginia. A policy concerning an acceptable date for inaugurating kindergarten in Virginia was part of the Standards:

> In view of the importance of providing kindergarten education throughout the State, school divisions should begin planning promptly for the inauguration of this program by September 1974. In exceptional circumstances and for justifiable reasons, the Board of Education may consider September 1976 as the latest "acceptable date" for the inauguration of kindergarten education.[1]

In August, 1972, kindergarten experience was first offered to five-year-olds of Grayson County. Faced with a firm belief in the "modeling effect" that was experienced in the one room school, a limited budget, a shortage of kindergarten teachers, and limited space, multigrade grouping (kindergarten and first grade students in one class) was used with three of the ten kindergarten classes. This situation provided a natural laboratory for testing the researcher's

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[1]Virginia, Manual for Implementing Standards of Quality and Objectives for Public Schools, (1972-74), p. v.

thesis that kindergarten children in a multigrade setting will develop a more positive self-concept and progress faster in the areas of social-emotional development, readiness, and achievement than kindergarten students in the traditional setting.

Multigrade grouping is not "the latest method" to be adapted hastily by a school division anxious not to be out-of-date in the educational approach. It is not an educational method at all. It is the deliberate application of a type of school organization that is presumed more conducive to the promotion of social-emotional, self-concept, readiness, and intellectual growth. This growth in all four areas is enhanced by "the modeling effect". In spite of "individual differences", each person learns to feel and think, to act and speak, much like other people with whom he (or she) associates. Students acquire knowledge and skills, ways of perceiving and valuing, from peers, older students, parents, and teachers.

## LITERATURE RELATED TO THE THESIS

The review of research related to the thesis of this study deals with the general background and nature of grouping and with multigrade grouping as it affects self-concept, social-emotional development, readiness development, and intellectual development.

### Dame Schools

From colonial days to the present, the problem of grouping students for instructional purposes has been of keen interest. During the days of the Dame Schools, pupils of various ages were gathered

together under the guidance and direction of one teacher. The village school or one room school was one of the earliest educational institutions, and throughout its history it made use of mixed-age grouping. In all these schools, mixed-age grouping was a result of administrative convenience. Since the Dame Schools, many forms of grouping of concern to parents, classroom teachers, administrators, boards of education, and professors of education have been tried.

Graded Schools

Goodlad tells us, "When the graded school was established as the pattern for American education the prevailing view of individual differences was quite different".[2] The function of the public school, as perceived by many, was that schools were created for the purpose of reproducing in the learner the knowledge, attitudes, values, and techniques that inducted individuals into the culture.

This graded system called for presenting the same basic grade-level curriculum to all students having the same age or number of years of schooling. Further, group teaching had been mainly whole-class teaching in which the methods and pacing of instruction, as well as the lessons taught, were largely the same for all members of the class.

Its past purpose and contribution was supported by Anderson who professed:

> The graded school was developed during a century

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[2] J. I. Goodlad, "Inadequacy of Graded Organization", Childhood Education, (1936), p. 17.

> when teachers were poorly educated and poorly trained and when the curriculum itself was poorly organized and unstructured. There was a real need for packaging the school program into explicit and sequential portions over each of which a teacher could achieve mastery. Consequently, gradedness served a highly useful purpose and made a great contribution to educational development.[3]

A statement presented by the Research Committee for Economic Development in 1959 called for a national effort to help overcome failures in education. The committee saw numerous possibilities for improving a school's effectiveness in the organization of instruction. Their conclusions included:

> The traditional grouping of students simply by age or years in school ignores the importance of treating every person in accordance with his individual needs and talents . . . . It is clear that there must be a basic change in the attitudes and approaches of large numbers in the teaching profession toward instructional organization, methods, and research.[4]

Heterogeneous Grouping Plans

Several heterogeneous grouping plans are reported in the literature. The Winnetka Plan was designed to establish individual goals and to support individual progress with the group context.[5] Platoon Grouping or the Gary Plan provided for sectioning children into two

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[3]R. H. Anderson, Teaching in a World of Change (New York: Harcourt, Brace & World, 1966), p. 45.

[4]Research Committee for Economic Development, Paying for Better Schools, (New York, 1959), p. 39.

[5]Joe L. Frost and G. Thomas Rowland, Curricula for the Seventies: Early Childhood Through Early Adolescence (Boston: Houghton Mifflin co., 1969), p. 222.

groups: one to consider fundamental classroom subjects and the other to participate in related activities in special rooms. The purpose was to achieve a balance between academic and social-creative work.[6] The Joplin Plan was designed to reduce differences in reading through ability grouping across grade levels. Students were assigned to a particular group and a particular reading teacher according to reading scores and teacher judgment. The group was made up of students of different ages from several grade levels.[7]

The Multiunit Elementary School

More recently, schools have been using multigrade, multi-age heterogeneous grouping plans. The Multiunit Elementary School Plan, organized in 1965 in Madison, Wisconsin, is the best known multigrade plan. This plan emerged from a theory concerned with instructional programming for the individual student, horizontal and vertical grouping for instruction, role differentiation, shared decision making, and open communication.

The Cross-Age Helping Program

The Cross-Age Helping Program is an approach to enhancing the quality of the learning environment. Through it, older children are

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[6]Harold G. Shane, "Grouping in the Elementary School", Phi Delta Kappan, XII, No. 7 (April, 1960), p. 312.

[7]Frost and Rowland, pp. 222-223.

[8]IGE: Multiunit Elementary School, Wisconsin Research and Development Center for Cognitive Learning, (1965), p. 3.

trained to help younger children learn. Numerous benefits accrue to both the older and the younger students, including improved academic performance and better attitudes toward teachers, school, self, and others.[9]

The rationale for cross-age helping is that all children need more individual help than a teacher can possibly give unaided. Furthermore, older children, because they are children, offer resources adults cannot provide as well. They are closer in age and can often reach a child who is having difficulty when an adult cannot; they provide more realistic models of behavior; and they offer opportunity for friendship.

Helpers work directly with the younger children from twenty to fifty minutes (depending on age and interest) three or four days a week in reading, writing, spelling, math, physical education, shop, or other activities. Sometimes the olders work with small groups instead of a single individual. The helping sessions take place whenever and wherever convenient--at the younger's desk, at the back of the room, in the hall outside the door, or in the library or special activities room.

According to teachers, a number of benefits accrue from a Cross-Age Helping Program. Experience indicates that such programs (1) reduce behavioral problems; (2) reduce referrals; (3) build

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[9]Peggy Lippitt, Children Can Teach Other Children, Institute for Social Research (Ann Arbor: University of Michigan, 1969), p. 2.

self-esteem; (4) build academic skills; (5) bridge the gap between teacher and student; (6) provide for individualized instruction; (7) help motivate the unmotivated (both older and younger students); (8) help students work through at a safe emotional distance their own hang-ups regarding behavior, attitudes, intentions about peers, siblings, younger or older children, authority figures, learning, etc. as they help younger students solve their problems; (9) allow a child to step into the role of teacher or grown-up (while still a child) and learn from it; (10) promote a desire for more acceptable behavior, or a higher standard of excellence from himself and others instead of rebelling against it; (11) reduce discipline problems.[10]

Although multigrade grouping differs from Cross-Age Helping Programs, the concept of mixing older and younger children, on which both are based, provides some credence to the belief that there may be educational benefits derived from combining kindergarten and first grade classes.

Family or Vertical Grouping in English Primary Schools

Murrow, when discussing the grouping of children in English Primary Schools, expresses a strong belief that children must come to learning in their own way, and family or vertical grouping allows for full individual development. When accounting the effects of this interaction between children on reading, he stated:

> The older child may read to the younger one, thus getting some practice in reading aloud . . . .

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[10] Ibid., pp. 3-4.

> This cooperative learning, across different ages, promotes a spirit of unity in classrooms and teaches the children the value of caring for another.[11]

This type grouping implies a flexible school in which organization has been so adapted as to facilitate learning to the broadest sense--social, emotional, self-concept, and intellectual.

> In a vertical organization, intelligent children are able to be with their intellectual equals irrespective of age, while slow children are not made to feel lost or dull competing unsuccessfully within their own age-group. The children become accustomed to working in a class surrounded by other children who have reached more mature levels of sociability, emotional stability, and intellectual achievement. These circumstances enable the children to gain more realistic views of themselves and also provide valuable guide-ropes, enabling them to live in "today" and also to move forward confidently into the "tomorrow" of experience. Also, there is more scope for leadership experience, because all the children in turn become the "elder statesmen" and more experienced members of the class community.[12]

## Effects of Multigrade/Multi-Age Grouping on Children

Critics of multigrade grouping often raise the problem of standards and fear that some children may underfunction with this type structure, but this is not supported by research. Results of research into the effects of multigrade grouping appear to demonstrate that this type school organization can be more beneficial to children than the traditional organization.

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[11] C. L. Murrow, Children Come First (New York; American Heritage Press, 1971), p. 63.

[12] Vincent R. Rogers, Teaching in the British Primary School, (New York: Macmillan Co., 1972), p. 46.

> Basically, then, this multi-age organization is designed to support the development of individuality in pupils and to encourage the type of teaching that fosters this development. If a teacher wants to individualize instruction--to break away from the idea of covering a pre-determined sequence of subject matter; to recognize and use the variety of interests and skills in her class--then a multi-age group with a broad range of abilities is her cup of tea. Such a group will enable her to interact with curriculum and children in a consistent, ungraded, individualized fashion.[13]

Anderson perceived multigrade grouping as an alternative to past gradedness. "Teachers hesitate to abandon grade labels and gradedness all at once but who still want greater freedom in providing for individual differences may find multi-graded classes an excellent transition."[14]

Another authority very critical of the typically graded school and a proponent of vertical arrangement was Beauchamp.

> The concept of grade levels is perhaps our biggest harassment because this practice is so firmly entrenched. No place in our culture do we limit association to a span of a chronological year. This method or organization lends itself to standardization of method and content and to the concept of learning as a "funneling in" process.
>
> An extension of the grade level concept is that of ability grouping. In its virulent form, it appears as three levels of reading groups within a grade, or homogeneous grouping by grades. Such practices are antithetical to the wholeness concepts so vital to mental health. The problem is to keep them (children) in a group) sufficiently different so that they have something unique and worthwhile to communicate to one another.

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[13] B. S. Wolfson, "The Promise of Multi-Age Grouping for Individualizing Instruction," The Elementary School Journal, (1967) pp. 355-356.

[14] R. H. Anderson, Teaching in a World of Change (New York: Harcourt, Brace & World, 1966), p. 57.

> Many primary schools are functioning so that children may achieve high levels of wholeness, and so that learning is integrative. We are learning that too much pressure, too soon applied, delays the acquisition of skill. A few schools are experiencing the challenge of grouping children, representing an age span of two to four years . . . known as inter-age-grouping.[15]

Franklin reports upon an area in which vertical grouping can affect reading and self-concept.

> Because a child remains in a group for more than one year, his relative position changes. He does not remain the youngest or smallest or largest and slowest year after year, as he is apt to in a graded situation.[16]

In the opinion of Almy, multigrade grouping fosters interaction in which children may learn more from a peer or somewhat older child, than from adult instruction. She expressed interest in vertical grouping by stating:

> Children who seem to have understood a particular concept might be given opportunities to help children who appear less certain. Perhaps the aim in "grouping" children for various activities within the class should more often be heterogeneity in ability and less often, the homogeneity that teachers often seek and so seldom find.[17]

Ada Polkinghorne, while at the University of Chicago Laboratory School, reported that vertically grouped classes resulted in advantages

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[15] M. Beauchamp, "How Should We Look at Levels?," Childhood Education, (1955), p. 164.

[16] M. P. Franklin, "Multi-grading in Elementary Schools," Childhood Education, (1967), p. 63.

[17] M. Almy, Young Children's Thinking, (New York: Teachers College Press, Columbia University, 1966), p. 38.

in achievement, in the variety of interests shown by pupils, and the teachers being able to adjust instruction to maturational levels rather than to just grade assignments. Her comparisons were based on five rooms of vertically arranged six and seven year olds, in contrast to singly graded classrooms.[18]

Rehwoldt and Hamilton report a study of some of the effects of interage and intergrade grouping in an elementary school in Torrance Unified School District, California. The problem for the study was to determine whether greater learning and growth of pupils would take place in classes that contained three grades and an age range of three years or more than in typical classes in which there was only one grade and the normal range in age and ability. Among the questions investigated were: Do the pupils in the multigrade classes make greater gains in subject matter achievement? Do the pupils in the multigrade classes make greater gains in certain aspects of maturity--in personal and social adjustment? Do they make greater progress in certain behavior characteristics? Are the attitudes toward school favorably affected by membership in a multigrade class? Is the pattern favorably accepted by parents, teachers, and administrators?

The following findings were considered significant by the investigators:

1. The academic achievement of pupils in most grade levels

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[18]A. R. Polkinghorne, "Grouping Children in the Primary Grade," Elementary School Journal, (1941), pp. 502-508.

was favorably influenced by the fact that they were members of a multigrade class (three grades).

2. Membership in a multigrade class contributed favorably to the personal adjustment of pupils.

3. The social adjustment of pupils in a multigrade class was improved.

4. Pupil attitudes toward school were better in the multigrade group.

5. Parents of pupils in multigrade classes expressed strong support in favor of such grouping and evidenced better attitudes toward school than did the parents of regular-grade pupils.

6. Pupil-pupil relationships in multigrade and regular-grade classes were similar.[19]

Knight studied pupil achievement in double grades in the New Haven schools. He found that differences in results of standardized tests showed little difference in direction between the fourth grade taught separately or combined with the grade above or below. In fact, double grades seemed to foster acceleration in the grade location and also to reduce retardation. However, principals did not like this plan. Teachers preferred single grades.[20]

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[19]Walter Rehwoldt and Warren W. Hamilton, "An Analysis of Some of the Effects of Interage and Intergrade Grouping in an Elementary School," Cooperative Research Project, (University of Southern California, January, 1957), pp. 81-89.

[20]E. E. Knight, "A Study of Double Grades in New Haven City School," Journal of Educational Research, VII, (1948), pp. 11-18.

A study was made in Hamilton, Ohio, of sixteen class groups of fifth and sixth grades on the relationship between group achievement and range of abilities within the group. In each grade in each school two groups were established with variations in the range of IQ's. These groups were designated as the wide- and narrow-range groups. The average range of IQ points was thirty. Edmiston and Benfer, the investigators, found better reading achievement in the wide-range groups (forty IQ points) than in the narrow-range groups (thirty IQ points). Although parents and teachers generally have expressed concern if children in two or more grades are put together under one teacher, studies have not, on the average, shown unfavorable differences in achievement when compared with the single teacher per grade plan of organization.[21]

Miller, McDonald, and Knight report a program of interage grouping in the upper elementary school. Fifth and sixth-grade children were deliberately mixed for instruction. Pupils usually remained with the same teacher for two years. Broad curricular areas were planned in two-year blocks. Learning experiences were planned by teachers and children in relation to pupil needs, interests, and purposes; needs of society; and the nature of content. Evaluation of pupil growth consisted of standardized assessment devices and informal appraisals. The pupil's own potential was the standard against which

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[21] R. W. Edmiston and J. G. Benfer, "The Relationship Between Group Achievement and Range of Abilities Within the Group," Journal of Educational Research, XLII, (1949), pp. 547-548.

he was evaluated. The typical "grade standard" was not used. The investigators found that teachers, parents, and pupils were enthusiastic about the program. Achievement, as determined by standardized tests, continued to be high.[22]

A recent study in Manchester, England, is worthy of examination. The school population, located in four schools, numbered one hundred-eighty children, ages five through seven years. The schools were paired for locality, size of school, quality of school facilities, size of classes, staff ratio, similarity of teaching methods, and quality of staffing. The aim of this investigation was to test the hypothesis that the effects of vertical grouping are more beneficial to children at the infant stage than those of graded groupings.

Myock reported a number of interesting differences between the two groups. Some of the results were:

1. Improvements in reading and mathematical skill; although not of significant difference.

2. Significant differences in increased range of social interactions in favor of vertical groups.

3. Significant differences in increased levels of aspiration in favor of vertical groups.

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[22]George L. Miller, Jack A. McDonald, and Don A. Knight, "Inter-Age Grouping in the Upper Elementary School," Toward Effective Grouping, (Washington: Association for Childhood Education International, (1962), p. 50.

4. Significant differences in attitudes and work habits in favor of vertical groups.[23]

## SUMMARY

The literature presented is illustrative of the widespread interests in grouping patterns. Although there is little direct evidence in the literature to support or deny the thesis of this dissertation, the available evidence indicates that there may be educational benefits derived from combining older and younger children for instructional purposes. While the number of studies available is limited, it is possible to present certain existing commonalities:

1. A number of authorities are questioning the traditional graded classroom and find that it can suppress individual learning and induces conformity to graded lock-step learning.

2. Multigrade grouping is being viewed as an asset when teachers can formulate open-ended learning tasks capable of being handled on several levels and can compose small groups by following the lines of relationships and communication among the members.

3. Evidence supports the belief that achievement gains made by pupils in classrooms representing more than a normal spread of differences among children are higher than average gains made by pupils in single grade grouped classrooms.

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[23] M. A. Myock, "A Comparison of Vertical Grouping and Horizontal Grouping in the Infant School," The British Journal of Educational Psychology, (1966), pp. 133-136.

4. The literature demonstrates that educators are seeking organizational arrangements that increase flexibility in grouping and encourage provision for individual learning.

5. Many studies are producing findings that show vertical or multi-age classrooms exceeding single grade groups in achievement.

## NEED FOR FURTHER STUDY

It is quite evident that there has been much expression of concern and an increased desire for research in the field of school organization at the primary level. By continuing such experimentation and research, more effective grouping patterns in the early years of school may be more fully realized, thus providing the individual learner more opportunity to reach his full potential.

The mandate from the State Board of Education concerning kindergarten education will create problems in school organization for many administrators in southwest Virginia. In the thirteen most western counties there are forty-five elementary schools with an estimated kindergarten enrollment of less than twenty children each (Table I). The cost for a class of fewer than twenty children is so great that it is not feasible to schedule. With this in mind the administrator has two alternatives to consider: (1) transport the children out of the community to another school, or (2) group the kindergarten children with children from other grade levels. Since southwest Virginia school divisions may be inclined to combine kindergarten and first grade children to financially accommodate the State mandate

TABLE I

ESTIMATED KINDERGARTEN ENROLLMENT FOR THIRTEEN COUNTIES IN SOUTHWEST VIRGINIA[a]

| County | Number of Elementary Schools | Number of Elementary Schools with an Estimated Kindergarten Enrollment of Less Than Twenty Children |
|---|---|---|
| Bland | 5 | 3 |
| Buchanan | 12 | 3 |
| Carroll | 11 | 8 |
| Dickenson | 5 | 0 |
| Grayson | 9 | 3 |
| Lee | 11 | 3 |
| Russell | 11 | 4 |
| Scott | 11 | 3 |
| Smyth | 8 | 2 |
| Tazewell | 16 | 8 |
| Wise | 12 | 5 |
| Wythe | 7 | 2 |
| Washington | 14 | 1 |
| TOTAL | 132 | 45 |

[a]Virginia Education Association, 1972-73 Principals' Study, (December, 1972), pp. 26-36.

for kindergartens, research is needed to assure those making such decisions that there are at least no major detrimental effects on the growth of kindergarten children placed in the multigrade classes.

## SUMMARY OF CHAPTER ONE AND OVERVIEW OF SUCCEEDING CHAPTERS

A statement of the thesis, a review of the literature related to the thesis, and the need for further investigation of the thesis were presented in Chapter I. The thesis that kindergarten children in a multigrade setting will develop a more positive self-concept and progress faster in the areas of social-emotional development, readiness development, and achievement than kindergarten students in the traditional setting has little direct literature either supporting or denying its validity. However, literature that is available hints at the possibility that under further investigation the thesis may be supported. Such support would help legitimize combined K-1 grades in southwest Virginia, thereby yielding financial savings to thirteen school divisions in that area. Further research on the thesis would also add to the limited knowledge on the effects of multigrade grouping on children.

Chapter II. This chapter includes a description of the community, Grayson County, involved in this study. Validity and reliability of all instruments used as measures for each of the seven hypotheses are described. Procedures for collecting data and methods of analyzing data conclude the chapter.

Chapter III. In this chapter, results related to the seven hypotheses in this study are reported. Correlations, comparisons, and descriptive data are shown in table form throughout the content of the chapter.

Chapter IV. In this chapter, conclusions, discussions, and implications of this study are reported.

# CHAPTER II

## METHODS AND PROCEDURES

From the review of literature in Chapter I, it is evident that research is needed on the effects of multigrade grouping on children at the primary level. This chapter contains the outline of a study which will provide additional information in this area.

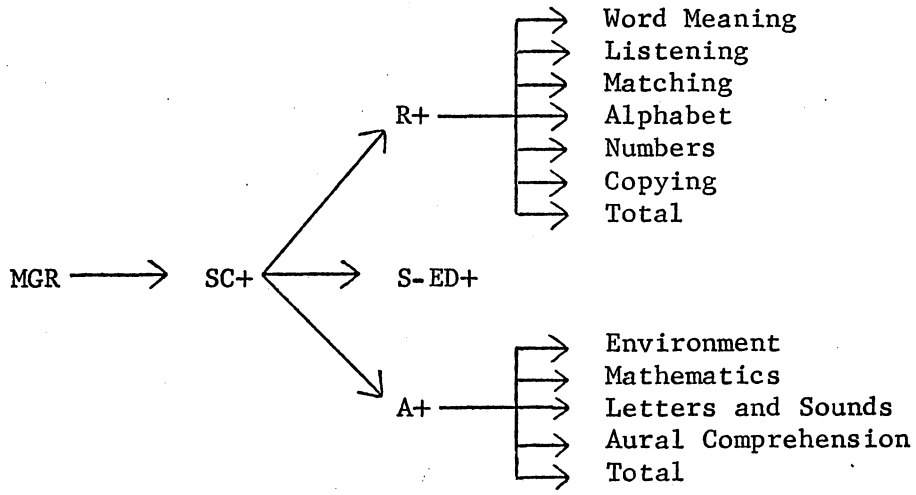
The main purpose for this investigation is to determine if there is a relationship between type of primary school organization (multigrade or traditional) and self-concept, social-emotional development, readiness, and achievement of children.

Figure 1 contains the overall conceptual framework for the study. The diagram indicates that children in a multigrade setting have higher self-concepts and therefore exhibit higher social-emotional development, readiness, and achievement than children in traditional classes. Of course, the corollary is also assumed: children in traditional settings have lower self-concepts and therefore manifest lower social-emotional development, readiness development, and achievement than children in multigrade classes.

Seven assumptions are either directly stated or implied in the model in Figure 1. These assumptions are stated in Figure 2 and serve as the basis for deriving the following seven hypotheses tested in this study.

1. If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score

Model




| Legend: | | | |
|---|---|---|---|
| | MGR | = | Multigrade Grouping |
| | SC | = | Self-Concept |
| | S-ED | = | Social-Emotional Development |
| | R | = | Readiness |
| | A | = | Achievement |
| | + | = | High |

Figure 1

Conceptional Framework
For Study of Thesis[a]

[a]For an explanation of the procedure used to develop this model, see Appendix B.

Assumptions

(Stated Assumptions)

MGR → SC+
SC+ → R+
SC+ → S-ED+
SC+ → A+

(Implied Assumptions)

MGR → R+
MGR → S-ED+
MGR → A+

| Legend: | | | |
|---|---|---|---|
| | MGR | = | Multigrade Grouping |
| | SC | = | Self-Concept |
| | R | = | Readiness Development |
| | S-ED | = | Social-Emotional Development |
| | A | = | Achievement |
| | + | = | High |

Figure 2

Stated and Implied
Assumptions

higher on The Self-Concept and Motivation Inventory: Early Elementary Form than kindergarten children enrolled in classes with only kindergarten children.

2. If kindergarten children score high on The Self-Concept and Motivation Inventory: Early Elementary Form, then they will score high on the Social-Emotional Behavior Inventory.

3. If kindergarten children score high on The Self-Concept and Motivation Inventory: Early Elementary Form, then they will score high on each of the seven dimensions of the Metropolitan Readiness Test.

4. If kindergarten children score high on The Self-Concept and Motivation Inventory: Early Elementary Form, then they will score high on each of the five dimensions of the Stanford Early School Achievement Test.

(Implied Hypotheses)

5. If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score higher on the Social-Emotional Behavior Inventory than kindergarten children enrolled in classes with only kindergarten children.

6. If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score higher on the Metropolitan Readiness Test than kindergarten children enrolled in classes with only kindergarten children.

7. If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score higher on each of the five dimensions of the Stanford Early School Achievement Test than kindergarten children enrolled in classes with only kindergarten children.

## DEFINITIONS OF TERMS

The terms important to the understanding of this study are defined below.

1. Multigrade grouping - Two school groups (kindergarten and first grade) assigned to one teacher for the purpose of formal instruction in Grayson County, Virginia.

2. Traditional kindergarten - A school program designed for five-year-old children and labeled "kindergarten" by the Grayson County School Division, Virginia.

3. Self-concept - A student's score on the Self-Concept and Motivation Inventory.

4. Social-emotional development - A student's score on the Behavior Inventory completed by the teacher.

5. Readiness development - A student's score on the seven dimensions of the Metropolitan Readiness Test; Word Meaning, Listening, Matching, Alphabet, Numbers, Copying, and Total.

6. Academic achievement - A student's score on the five dimensions of the Stanford Early School Achievement Test: Environment Mathematics, Letters and Sounds, Aural Comprehension, and Total.

7. Family size - The number of persons living together under the same roof irrespective of relationships.

8. Socio-economic status (S.E.S.) - A student's rank on socio-economic status was determined by family income and number in family. Federal poverty guidelines presented in Table II were used to establish S.E.S.

9. High self-concept - A student's score on the Self-Concept and Motivation Inventory Test above the median score of one hundred eighty-three kindergarten children used in this study.

10. Low self-concept - A student's score on the Self-Concept and Motivation Inventory Test below the median score.

## POPULATION

Grayson County, which was formed in 1792, is known as the "Rooftop of Virginia" because it has the two highest mountain peaks in the state--Mt. Rogers and White Top. The county was named for William Grayson, one of the first two U. S. Senators from Virginia.

Farming is a primary source of livelihood in the rural county of Grayson. Both raising beef cattle and producing dairy products are important to the residents of Grayson County. The scenic beauty attracts tourists to the area. Mountains, clear fresh-water streams, and valleys make Grayson County one of the most picturesque areas in the state. The environment and atmosphere make the county a place of natural beauty. The community residents are proud of their efforts

TABLE II

FAMILY SIZE AND INCOME FOR DETERMINING SOCIO-ECONOMIC STATUS USING FEDERAL POVERTY GUIDELINES[a]

| Family Size | Income |
|---|---|
| 1 | *Below $1920 |
| 2 | Below $2520 |
| 3 | Below $3120 |
| 4 | Below $3720 |
| 5 | Below $4270 |
| 6 | Below $4820 |
| 7 | Below $5320 |
| 8 | Below $5820 |
| For each additional family member add $450 | |

[a]Policy Manual, Grayson County Schools, (Independence, Virginia, 1972-73), p. 81.

*Below indicates poverty level.

toward maintaining the natural resources found in Grayson County.[24]

The population of Grayson County is displayed in Table III.

Comparisons of the 1970 incomes of the people of Grayson County with those of the people in the State of Virginia are shown in Table IV. The Grayson County median family income was $5,674. Comparative median incomes were $7,589 for rural Virginia and $9,049 for the State of Virginia as a whole. It can be seen that Grayson County appears at a disadvantage in nearly all income groupings shown in Table IV when compared with income levels in other rural localities of Virginia and the State as a whole.

The people of Grayson County in 1970 had less than the average schooling for rural Virginians. A study of Table V shows that the median school years completed by adults twenty-five years old and older in Grayson (8.4) compares unfavorably with comparative figures for Virginia (11.7) and the United States (12.1). The median schooling for women was 8.7 years as compared with 8.0 years for men.

## SCHOOLS

Grayson County has two separate school boards. The Grayson County School Board is composed of four members--one from each of the

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[24]ESEA Title I Program, Grayson County Public Schools, 1972-73 Evaluation Report, p. 7.

TABLE III

POPULATION OF GRAYSON COUNTY[a]

| Year | Grayson County |
|---|---|
| 1900 | 16,853 |
| 1910 | 19,856 |
| 1920 | 19,816 |
| 1930 | 20,017 |
| 1940 | 21,916 |
| 1950 | 21,379 |
| 1960 | 16,540 |
| 1970 | 15,439 |

[a]Grayson County Public Schools, An Evaluation Report, October, 1970, p. 2.

TABLE IV

FAMILY INCOMES IN GRAYSON COUNTY, 1970,
WITH SELECTED COMPARATIVES[a]

| Income Groupings | Grayson County | | Comparative Percents | |
|---|---|---|---|---|
| | Number | Percent | Rural Va. | State |
| Under $1,000 | 141 | 3 | 3 | 2 |
| $1,000 to $4,000 | 1,084 | 25 | 17 | 13 |
| $4,000 to $8,000 | 1,865 | 44 | 33 | 27 |
| $8,000 to $15,000 | 1,070 | 25 | 36 | 38 |
| Over $15,000 | 132 | 3 | 11 | 20 |
| Total | 4,292 | | | |
| Median Family Income | $5,674 | | 7,589 | 9,049 |

[a]U. S. Depatment of Commerce, 1970 Census of Population, PC(2)-8B-Earnings by Occupation and Education, (Washington: 1970), p. 61.

TABLE V

MEDIAN YEARS OF SCHOOLING OF ADULTS IN GRAYSON COUNTY 1970, COMPARED WITH VIRGINIA, AND UNITED STATES POPULATIONS[a]

| | Male | Female | Total |
|---|---|---|---|
| Grayson County | 8.0 | 8.7 | 8.4 |
| Virginia | 11.4 | 11.8 | 11.7 |
| United States | 12.0 | 12.2 | 12.1 |

[a]U. S. Department of Commerce, 1970 Census of Population, PC(2)-5B-Educational Attainment, (Washington: 1970), p. 303.

magisterial districts. The Town of Fries has a board of four members. One central office serves both school divisions.

Public schools in Grayson County existed as early as 1871. During that time, there were nine schools which were operated in the Oldtown District. All except two were one-room schools; those two had two rooms each. From 1900 to 1950 school buildings were gradually improved and some of the small schools were consolidated. There are now ten schools in Grayson County. The school population for Grayson County is presented in Table VI.

An examination of Table VI indicates that there were two schools which served the educational needs of students in kindergarten through twelfth grade. The total number of students attending Fries School and Mt. Rogers was 746. Additionally, Table VI reveals that there are no intermediate or junior high schools. The total school population for Grayson County was 3,093 students in 1972-73.

The school enrollment for the eight years prior to 1973-74 is illustrated in Table VII. An examination of the table indicates that the school population has remained relatively stable.

Projected school enrollments through 1976-77 are shown in Table VIII. The projections for the next four years are based upon the pattern of births, migration, and school attendance during the past five years.

Changes in future school enrollments may be brought about by an increase in in-migration to the county as a result of industrial development or by an increase in the holding power of the schools.

TABLE VI

SCHOOL POPULATION FOR GRAYSON COUNTY
1972-73[a]

| Schools | Level | Enrollment |
|---|---|---|
| Fries School | K-12 | 507 |
| Independence High School | 8-12 | 547 |
| Baywood | K-8 | 304 |
| Bridle Creek | 1-7 | 199 |
| Elk Creek | K-7 | 187 |
| Fairview | K-8 | 346 |
| Flat Ridge | K-7 | 99 |
| Independence Elementary | K-7 | 367 |
| Providence | K-7 | 298 |
| Mt. Rogers | K-12 | 239 |
| Total | K-12 | 3,093 |

[a]Official School Enrollment Records, Grayson County School Board Office, Independence, Virginia.

TABLE VII

SCHOOL ENROLLMENT FOR 1965 THROUGH 1973[a]

| Year | Grayson | | Total |
|---|---|---|---|
| | Elementary | Secondary | |
| 1965-66 | 2,472 | 936 | 3,408 |
| 1966-67 | 2,370 | 912 | 3,282 |
| 1967-68 | 2,160 | 1,076 | 3,236 |
| 1968-69 | 2,094 | 1,044 | 3,138 |
| 1969-70 | 2,012 | 1,050 | 3,062 |
| 1970-71 | 1,985 | 1,065 | 3,050 |
| 1971-72 | 1,953 | 999 | 2,952 |
| 1972-73 | 2,131 | 962 | 3,093 |

[a]Official School Enrollment Records, Grayson County School Board Office, Independence, Virginia.

TABLE VIII

PROJECTED ENROLLMENTS FOR SCHOOL SESSION
1973-74/1976-77[a]

| Year | Elementary | High School | Total |
|---|---|---|---|
| 1973-74 | 2,102 | 978 | 3,080 |
| 1974-75 | 2,035 | 914 | 2,949 |
| 1975-76 | 1,966 | 847 | 2,813 |
| 1976-77 | 1,880 | 829 | 2,709 |

[a]Grayson County Public Schools: An Evaluation Report, October, 1970, p. 6.

As the school program continues to improve, children will remain in school longer.

It is evident that Grayson County is unique in many respects and that generalizations to other school divisions from the data in this study should be made with caution.

## KINDERGARTEN POPULATION

This study was limited to the kindergarten classes of the Grayson County, Virginia, Public School System in the 1972-73 school year.

The control and experimental groups, Groups T (Traditional) and MGR (Multigrade) respectively, consisted of ten classes representing the entire attendance area of this school division (Table IX).

The total number of children involved in Group T was one hundred fifty-two of which seventy-eight were girls and seventy-four were boys. The total number of children involved in Group MGR was thirty-one of which twelve were girls and nineteen were boys.

The data for this study were gathered over a two year period: the kindergarten class of 1972-73 and this same class as first graders in 1973-74. The twelve children, one in the multigrade group and eleven in the traditional group, who did not complete the full kindergarten program in the Grayson County Public School System were dropped from the study.

TABLE IX

KINDERGARTEN POPULATION, MULTIGRADE FIRST GRADE POPULATIONS, SEX, FAMILY SIZE, SOCIO-ECONOMIC STATUS, AGE, AND STUDENTS DROPPED
GRAYSON COUNTY, VIRGINIA 1972-73

| | Class | Number of Kinder-garten Students | Number Boys | Number Girls | Family Size Mean | S.E.S. Mean | Average Age Kindergarten Students | Students Dropped | Number of First Grade Students |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Oct. 1, 1972 | | |
| Multigrade Grouping Kindergarten and First Grade Classes | 1 | 12 | 8 | 4 | 4.83 | 1.16 | 66 mo. | 1 | 17 |
| | 2 | 13 | 8 | 5 | 5.15 | 1.46 | 67 mo. | 0 | 18 |
| | 3 | 6 | 3 | 3 | 4.00 | 1.17 | 69 mo. | 0 | 20 |
| TOTAL | 3 | 31 | 19 | 12 | 4.80 | 1.26 | 67 mo. | 1 | 55 |
| Traditional Kindergarten Classes | 1 | 19 | 11 | 8 | 4.68 | 1.26 | 69 mo. | 1 | |
| | 2 | 26 | 12 | 14 | 4.07 | 1.19 | 68 mo. | 1 | |
| | 3 | 23 | 12 | 11 | 4.26 | 1.26 | 67 mo. | 2 | |
| | 4 | 20 | 9 | 11 | 4.55 | 1.30 | 67 mo. | 5 | |
| | 5 | 20 | 10 | 10 | 5.25 | 1.40 | 68 mo. | 0 | |
| | 6 | 24 | 10 | 14 | 4.54 | 1.25 | 68 mo. | 1 | |
| | 7 | 20 | 10 | 10 | 4.35 | 1.35 | 68 mo. | 1 | |
| TOTAL | 7 | 152 | 74 | 78 | 4.50 | 1.28 | 68 mo. | 11 | |

## INSTRUMENTS

Four instruments were used to gather data for this study. The Metropolitan Readiness Tests, Stanford Early School Achievement Test, Self-Concept and Motivation Inventory, and the Behavior Inventory. A description of each of these instruments follows:

### Metropolitan Readiness Tests

Metropolitan Readiness Tests were devised to measure the extent to which school beginners have developed in the several skills and abilities that contribute to readiness for first-grade instruction. Designed for testing pupils at the end of the kindergarten year or the beginning of the first grade, these tests provide a quick, convenient, and dependable basis for early classification of pupils, thus helping teachers manage the instructional effort more efficiently. The tests are not designed as measures of the effectiveness of kindergarten programs, though it is entirely reasonable that a good kindergarten program should contribute to development of some of the abilities covered by the tests.

Six sub-tests are included in the Metropolitan Readiness Tests as follows:

Test 1, Word Meaning, is a sixteen-item picture vocabulary test. The pupil selects from three pictures the one that illustrates the word the examiner names.

Test 2, Listening, is a sixteen-item test of ability to comprehend phrases and sentences instead of individual words. The

pupil selects from three pictures the one which portrays a situation or event the examiner describes briefly.

Test 3, Matching, is a fourteen-item test of visual perception involving the recognition of similarities. The pupil marks one of three pictures which matches a given picture.

Test 4, Alphabet, is a sixteen-item test of ability to recognize lower-case letters of the alphabet. The pupil chooses a letter named from among four alternatives.

Test 5, Numbers, is a twenty-six item test of number knowledge.

Test 6, Copying, is a fourteen-item test which measures a combination of visual perception and motor control.

The total score of the six tests may be converted to a percentile rank, stanine, or letter rating.

Validity. Construct validity was determined by the relationship between the Metropolitan Readiness Tests and certain other readiness tests. The total score on the Metropolitan Readiness Tests correlates .80 with the total score on Murphy-Durrell Analysis, indicating that the two tests yield results that are in close agreement on the relative ranking of pupils in total readiness. Correlation between total score on the Metropolitan Readiness Tests and on the Lee-Clark Readiness Test was found to be .70.

Reliability. Data on the reliability of the subtest and total scores are presented in Manual of Directions. The data consists of three independent estimates of odd-even reliability coefficients for subtest and for total scores. Based on samples of pupils for three of the school systems taking part in the standardization program. The reliability of the total score is above .90 in all three determinations.

Stanford Early School Achievement Test

The Stanford Early School Achievement Test is designed to measure children's cognitive abilities upon entrance to kindergarten, during and at the end of the kindergarten year, and at the beginning of and during Grade 1. This test does not assume a prescribed kindergarten program, but it does take into consideration the new kindergarten trend toward greater attention to mental growth. The test consists of four parts which are described below.

Part 1, The Environment, has forty-two items taken almost equally from the social and the natural sciences.

Part 2, Mathematics, has twenty-eight items which measure such concepts as conservation of number and space; counting; measurement; and numeration, classification, and simple operations. It focuses primarily upon the mathematics learned through general experience and from informal kindergarten instruction.

Part 3, Letters and Sounds, has twenty-eight items which measure both the ability to recognize upper- and lower-case letters and the auditory perception of beginning sounds.

Part 4, Aural Comprehension, has twenty-eight items in aural comprehension which require the ability to pay attention to, organize, interpret, infer, and retain what has been heard.

Scores on the Stanford Achievement Test may be translated into grade scores, grade equivalents, percentile ranks, and stanines.

Validity. The validity of the Stanford Early School Achievement Test is difficult to assess. The authors give no specific information about procedures used to determine the content of the test. The Manual for Direction for administering the test implies that the content of kindergarten programs has influenced the content of the test, but no specific information is given about the sources used to make these decisions. In the same section of the manual, there is an implication that the test is designed to assess the general experience background of the child when he enters kindergarten, but no evidence is presented for this purpose.

Reliability. Presented in Table X are the split-half (odd-even) reliability coefficients corrected by the Spearman-Brown Prophecy Formula. The standard errors of measurement are also reported in this table. These reliability coefficients concern the homogeneity of content or internal consistency of each part of the test. The coefficients obtained are of the magnitude expected since each part of the test is intentionally short, and reliability increases with test length.

TABLE X

RELIABILITY COEFFICIENTS AND STANDARD ERRORS OR MEASUREMENT FOR EACH PART: STANFORD EARLY SCHOOL ACHIEVEMENT TEST[a]

| Part | Grade 1.1 r[b] | SEm[c] |
|---|---|---|
| 1. The Environment | .82 | 2.4 |
| 2. Mathematics | .82 | 2.0 |
| 3. Letters and Sounds | .89 | 2.0 |
| 4. Aural Comprehension | .77 | 2.1 |

[a]Richard Madden and Eric R. Gardner, Stanford Early School Achievement Test, Level I, (New York: Harcourt, Brace and World, Inc., 1969.

[b]Split-half odd-even reliability (corrected).

[c]In terms of raw score.

The Self-Concept and Motivation Inventory: Early Elementary Form

This inventory is a diagnostic measure of academic self-concept designed for use with pre-readers. The inventory assesses self-concept, consisting of role expectations and self-adequacy. Pupils respond to questions prefaced with "What face would you wear if . . ." by selecting faces from a five-face response scale. The faces range from very unhappy to very happy facial expressions. The pupils must have some school experience before they are able to react to the questions.

The test produces two scores, role expectations and self-adequacy. The rating on self-concept is the combination of these scores. The role expectations section measures the positive acceptance of the aspirations and demands that the student thinks others expect of him. The self-adequacy section measures the positive regard with which a student views his present and future probabilities of success.

Validity. No mention is made of validity in the technical manual of the Self-Concept and Motivation Inventory; however, upon inspection there appeared to be ample face validity to accept the test as sufficiently valid for the purposes of this study.

Reliability. Reliability for this test is reported by the author in the Manual of Directions in which he lists a coefficient of .77 for first grade reliability. The type of reliability was not specified in the manual.

Behavior Inventory

This instrument was originally developed for use in Head Start programs to measure social and emotional growth. It was revised in format by school personnel in the central office of Grayson County. This inventory is one in which the teacher rates the social-emotional behavior of each class member on thirty-four different statements of behavior. For each type of behavior described, the rater evaluates the student on a scale ranging from positive behavior (a score of four) to negative behavior (a score of one). A copy of the Behavior Inventory is included in Appendix A.

Validity. Table XI includes the correlation coefficients between the Behavior Inventory and the Metropolitan Readiness Test, and the Stanford Early School Achievement Test. Although these tests do not measure the same thing, they do in general measure some aspect of growth. Obviously, social and emotional maturity must be an important component of what is termed readiness and achievement, and it would be surprising if the correlations between these tests were low. The correlations between these tests indicate validity for this instrument. Correlation coefficients were computed by using the Pearson product-moment formula.

Factor analysis, program BMD08M (Dixon, 1973), indicate that the Behavior Inventory measured one general factor. An examination of the items which had high loadings on factor one appeared to reflect the individual's maturity in social and emotional development. This outcome indicates the instrument did not measure social development

TABLE XI

CORRELATION COEFFICIENTS BETWEEN THE BEHAVIOR INVENTORY AND THE METROPOLITAN READINESS TEST AND THE STANFORD EARLY SCHOOL ACHIEVEMENT TEST OF GROUP MGR, GROUP T AND GROUP MGR AND T COMBINED

| Group MGR<br>Number of Subjects 31 | Metropolitan Readiness Test | The Stanford Early School Achievement Test |
|---|---|---|
| Behavior Inventory r | .73 | .48 |
| Mean | 60.03 | 100.64 |
| Standard Deviation | 14.93 | 11.16 |
| **Group T**<br>**Number of Subjects 152** | **Metropolitan Readiness Test** | **The Stanford Early School Achievement Test** |
| Behavior Inventory r | .52 | .40 |
| Mean | 59.18 | 101.63 |
| Standard Deviation | 14.22 | 14.67 |
| **Group MGR and Group T**<br>**Number of Subjects 183** | **Metropolitan Readiness Test** | **The Stanford Early School Achievement Test** |
| Behavior Inventory r | .55 | .41 |
| Mean | 59.33 | 101.46 |
| Standard Deviation | 14.31 | 14.11 |

TABLE XII

FACTOR ANALYSIS FOR BEHAVIOR INVENTORY

| | Factor Matrix Before Rotation | | |
|---|---|---|---|
| | FACTOR | | |
| Items | One | Two | Three |
| 1 | .73* | -.05 | .02 |
| 2 | .18 | .00 | .21 |
| 3 | .49* | .45 | -.28 |
| 4 | .12 | .24 | .62 |
| 5 | .59* | .30 | .05 |
| 6 | .62* | .22 | -.03 |
| 7 | .26* | -.44 | .51 |
| 8 | .71* | -.25 | -.27 |
| 9 | .44* | .42 | .07 |
| 10 | .70* | -.04 | .12 |
| 11 | .35* | .30 | .47 |
| 12 | .69* | .17 | .05 |
| 13 | .54* | -.59 | .07 |
| 14 | .76* | -.17 | -.17 |
| 15 | .34* | -.56 | -.07 |
| 16 | .20* | -.33 | .70 |
| 17 | .74* | -.29 | -.18 |
| 18 | .39* | .53 | .08 |
| 19 | .57* | -.52 | .07 |
| 20 | .23* | .62 | .37 |
| 21 | .70* | .30 | .03 |
| 22 | .69* | .44 | -.19 |
| 23 | .43* | .02 | .19 |
| 24 | .77* | -.16 | -.06 |
| 25 | .50* | .42 | -.26 |
| 26 | .73* | .25 | .05 |
| 27 | .49* | -.39 | .27 |
| 28 | .58* | -.36 | -.14 |
| 29 | .61* | .21 | -.24 |
| 30 | .50* | -.48 | -.16 |
| 31 | .22* | -.12 | .15 |
| 32 | .36* | -.31 | .15 |
| 33 | .63* | .04 | -.15 |
| 34 | .14 | .53 | .24 |

*Items loading strongly enough to be considered as making up one factor.

TABLE XIII

TEST-RETEST RELIABILITY CORRELATIONS BETWEEN OCTOBER BEHAVIOR INVENTORY SCORES AND JANUARY BEHAVIOR INVENTORY SCORES[a]

| Item Number | Item-Total October | Item-Total January | Item-Item |
|---|---|---|---|
| 1 | .39 | .57 | .73 |
| 2 | -.36 | .22 | .44 |
| 3 | .64 | .65 | .63 |
| 4 | .09 | .15 | .33 |
| 5 | .56 | .41 | .44 |
| 6 | .45 | .65 | .64 |
| 7 | -.11 | .03 | .18 |
| 8 | .54 | .27 | .37 |
| 9 | .61 | .26 | .33 |
| 10 | .42 | .57 | .60 |
| 11 | .49 | .61 | .47 |
| 12 | .52 | .57 | .47 |
| 13 | .08 | .00 | .71 |
| 14 | .45 | .49 | .34 |
| 15 | .41 | -.01 | .63 |
| 16 | .18 | .12 | .41 |
| 17 | .57 | .48 | .42 |
| 18 | .48 | .50 | .79 |
| 19 | .32 | .17 | .72 |
| 20 | -.17 | .31 | .43 |
| 21 | .64 | .60 | .81 |
| 22 | .63 | .58 | .82 |
| 23 | .40 | .47 | .16 |
| 24 | .77 | .69 | .31 |
| 25 | .62 | .57 | .80 |
| 26 | .66 | .67 | .66 |
| 27 | .33 | .45 | .53 |
| 28 | .67 | .62 | .50 |
| 29 | .56 | .48 | .69 |
| 30 | .51 | .28 | .64 |
| 31 | .54 | .44 | .59 |
| 32 | .17 | .21 | .51 |
| 33 | .18 | .58 | .50 |
| 34 | .01 | .24 | .75 |

[a]Coefficients computed using Pearson product-moment formula. N=25.

and emotional development independently but were measured as one. This analysis provides validation that this instrument did in fact measure social and emotional development of the children as evaluated by their teachers. Presented in Table XII is the unrotated factor matrix showing the predominance of items from the Behavior Inventory loading on the first factor. Items with a coefficient of .19 or above were significant at the .01 level.

Reliability. The method of test-retest was used to establish reliability for this instrument. Although it was assumed that changes would occur in social-emotional behavior of individual students during the three month period between assessments, it was decided that the test should essentially be measuring the same thing and that correlations between pre-tests and post-tests should be relatively high. The results are presented in Table XIII.

## PROCEDURES OF DATA COLLECTION

The period of investigation during which the raw data were collected covered two school years, 1972-73 and 1973-74. During this time, data were collected on all kindergarten classes in Grayson County for the school year 1972-73, and all first grade classes for the school year, 1973-74. The data included measures of:

1. Social-Emotional Development
2. Self-Concept
3. Achievement in Mathematics
4. Achievement in Environment
5. Achievement in Letters and Sounds
6. Achievement in Aural Comprehension
7. Total Achievement

8. Readiness for Word Meaning
9. Readiness for Listening
10. Readiness for Alphabet
11. Readiness for Matching
12. Readiness for Numbers
13. Readiness for Copying
14. Total Readiness

Measure of social-emotional development. During the month of May, 1973, the Behavior Inventory was administered to all kindergarten children in Grayson County by the kindergarten teachers.

Measure of self-concept. During the month of November, 1973, the Self-Concept and Motivation Inventory was administered to all first grade students in Grayson County. The inventory was administered by the first grade teachers.

Measures of achievement. During the month of October, 1973, the Stanford Early School Achievement Test was administered to all first grade students in Grayson County by the first grade teachers.

Measure of readiness. During the month of May, 1973, the Metropolitan Readiness Test was administered to all kindergarten children in Grayson County by the kindergarten teachers.

## ANALYSIS OF DATA

Since the entire populations of kindergarten students in both the multigrade and traditional groups were used in this study, inferential statistics were inappropriate. The hypotheses were tested by comparison of population means. The differences between

these means were actual differences. Tables in Chapter III include the data relevant to each hypothesis.

# CHAPTER III

## RESULTS

The evidence from the collected data has been organized under three headings: the correlation among the fourteen dependent variables; the comparison of kindergarten children in multigrade grouping and traditional grouping on self-concept, social-emotional development, readiness development, and achievement; and the comparison of low self-concept and high self-concept children on social-emotional development, readiness development, and achievement. The last two headings will be discussed as they relate to the seven stated hypotheses.

### Correlation Coefficients

Matrices of the fourteen variables measured in this study were developed in which each variable was compared to every other variable for Group MGR, Group T, and Group MGR and Group T combined. These correlations appear in Tables XIV, XV, and XVI.

The data indicate relatively high correlations between social-emotional development scores, total readiness scores, and achievement scores. Extremely low correlations exist between self-concept and the other thirteen variables.

The order of presentation of the seven hypotheses in Chapter II is followed in the analysis of the test data.

TABLE XIV

CORRELATION COEFFICIENTS AMONG FOURTEEN VARIABLES FOR GROUP MGR

| VARIABLE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 R-Word Meaning | | | | | | | | | | | | | | |
| 2 R-Listening | .49 | | | | | | | | | | | | | |
| 3 R-Matching | .35 | .13 | | | | | | | | | | | | |
| 4 R-Alphabet | .32 | .46 | .38 | | | | | | | | | | | |
| 5 R-Numbers | .61 | .50 | .55 | .67 | | | | | | | | | | |
| 6 R-Copying | .36 | .14 | .33 | .21 | .36 | | | | | | | | | |
| 7 Readiness-Total | .71 | .61 | .65 | .76 | .91 | .53 | | | | | | | | |
| 8 A-Environment | .31 | .27 | .63 | .42 | .36 | .12 | .53 | | | | | | | |
| 9 A-Mathematics | .23 | .29 | .17 | .29 | .46 | .43 | .41 | .02 | | | | | | |
| 10 A-Letters and Sounds | .21 | .29 | .07 | .46 | .34 | .08 | .36 | .27 | .42 | | | | | |
| 11 A-Aural Comprehension | .23 | .19 | .22 | .49 | .33 | .36 | .48 | .36 | .36 | .58 | | | | |
| 12 Achievement-Total | .34 | .37 | .38 | .58 | .54 | .31 | .61 | .59 | .61 | .84 | .79 | | | |
| 13 Behavior Inventory | .48 | .63 | .38 | .56 | .55 | .38 | .73 | .32 | .43 | .34 | .29 | .48 | | |
| 14 Self-Concept | -.18 | -.11 | -.51 | -.19 | -.36 | .21 | -.30 | -.46 | .00 | .03 | -.18 | -.20 | -.01 | |

R-Readiness A-Achievement N=31

TABLE XV

CORRELATION COEFFICIENTS AMONG FOURTEEN VARIABLES FOR GROUP I

| VARIABLE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 R-Word Meaning | | | | | | | | | | | | | | |
| 2 R-Listening | .32 | | | | | | | | | | | | | |
| 3 R-Matching | .30 | .32 | | | | | | | | | | | | |
| 4 R-Alphabet | .36 | .31 | .51 | | | | | | | | | | | |
| 5 R-Numbers | .34 | .39 | .54 | .67 | | | | | | | | | | |
| 6 R-Copying | .29 | .29 | .52 | .36 | .42 | | | | | | | | | |
| 7 Readiness-Total | .35 | .55 | .76 | .81 | .84 | .68 | | | | | | | | |
| 8 A-Environment | .34 | .39 | .22 | .37 | .44 | .37 | .49 | | | | | | | |
| 9 A-Mathematics | .40 | .33 | 52 | .59 | .61 | .45 | .70 | .47 | | | | | | |
| 10 A-Letters and Sounds | .39 | .24 | .40 | .66 | .49 | .36 | .62 | .41 | .63 | | | | | |
| 11 A-Aural Comprehension | .41 | .32 | .32 | .39 | .39 | .38 | .51 | .58 | .56 | .53 | | | | |
| 12 Achievement-Total | .48 | .39 | .46 | .64 | .61 | .48 | .73 | .75 | .82 | .83 | .80 | | | |
| 13 Behavior Inventory | .56 | .21 | .31 | .47 | .57 | .19 | .52 | .14 | .42 | .45 | .24 | .40 | | |
| 14 Self-Concept | .01 | .07 | .00 | .13 | .07 | .22 | .13 | .15 | .10 | .22 | .19 | .21 | .04 | |

R-Readiness A-Achievement N=152

TABLE XVI

CORRELATION COEFFICIENTS AMONG FOURTEEN VARIABLES FOR GROUP MGR AND GROUP T

| VARIABLE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 R-Word Meaning | | | | | | | | | | | | | | |
| 2 R-Listening | .36 | | | | | | | | | | | | | |
| 3 R-Matching | .30 | .28 | | | | | | | | | | | | |
| 4 R-Alphabet | .34 | .30 | .49 | | | | | | | | | | | |
| 5 R-Numbers | .40 | .42 | .53 | .65 | | | | | | | | | | |
| 6 R-Copying | .29 | .26 | .49 | .33 | .40 | | | | | | | | | |
| 7 Readiness-Total | .59 | .56 | .74 | .79 | .85 | .66 | | | | | | | | |
| 8 A-Environment | .35 | .37 | .26 | .33 | .44 | .33 | .49 | | | | | | | |
| 9 A-Mathematics | .35 | .31 | .48 | .56 | .55 | .45 | .65 | .39 | | | | | | |
| 10 A-Letters and Sounds | .36 | .25 | .35 | .62 | .46 | .32 | .58 | .40 | .59 | | | | | |
| 11 A-Aural Comprehension | .38 | .30 | .30 | .38 | .40 | .37 | .50 | .55 | .53 | .53 | | | | |
| 12 Achievement-Total | .46 | .38 | .45 | .62 | .59 | .46 | .71 | .73 | .79 | .83 | .80 | | | |
| 13 Behavior Inventory | .37 | .28 | .33 | .47 | .56 | .22 | .55 | .16 | .43 | .42 | .25 | .41 | | |
| 14 Self-Concept | -.04 | -.02 | -.04 | .09 | .00 | .23 | .07 | .03 | .13 | .18 | .14 | .16 | .05 | |

R-Readiness A-Achievement N=183

Hypothesis One

If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score higher on the Self-Concept and Motivation Inventory than kindergarten children enrolled in classes with only kindergarten children. Table XVII and Table XVIII contain the data comparing Group MGR and Group T on self-concept.

The extent and consistency of the self-concept data justify the conclusion that kindergarten children in multigrade grouped classrooms tend to obtain more favorable self-concept scores than comparable children in traditional grouped classrooms. In the comparison of mean self-concept scores between the two groups for each of four subdivisions--sex, socio-economic status, age, and family size it can be stated that, without exception, Group MGR exceeded Group T. The differences, although consistently in the hypothesized direction, were generally too small to conclude an advantage of Group MGR over Group T.

Hypothesis Two

If kindergarten children score high on the Self-Concept and Behavior Inventory, then they will score high on the Social-Emotional Behavior Inventory.

Table XIX presents an analysis of the data relevant to the relationship between self-concept and social-emotional development. The data indicate that the mean on the Behavior Inventory for the high self-concept group was only slightly higher than the low self-concept group. When this small difference in means is coupled with a

TABLE XVII

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON SELF-CONCEPT

| Self-Concept | MGR | T | Difference |
|---|---|---|---|
| Number | 31 | 152 | |
| Mean | 50.84 | 46.42 | 4.42 |
| Standard Deviation | 4.79 | 6.03 | |

TABLE XVIII

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON SELF-CONCEPT BY SEX, S.E.S., AGE, AND FAMILY SIZE

| | Group MGR | | | Group T | | | |
|---|---|---|---|---|---|---|---|
| Variable | Number | Mean | Standard Deviation | Number | Mean | Standard Deviation | Difference |
| Sex: | | | | | | | |
| Boys | 19 | 50.84 | 4.51 | 74 | 45.90 | 6.18 | 4.94 |
| Girls | 12 | 50.83 | 5.40 | 78 | 46.91 | 5.88 | 3.92 |
| S.E.S. | | | | | | | |
| High | 23 | 49.47 | 4.68 | 109 | 46.31 | 5.88 | 3.16 |
| Low | 8 | 54.75 | 2.37 | 43 | 46.69 | 6.46 | 8.06 |
| Age | | | | | | | |
| 61-65 mo. | 11 | 50.09 | 4.67 | 52 | 46.76 | 6.53 | 3.33 |
| 66-70 mo. | 17 | 52.23 | 4.65 | 53 | 45.69 | 6.87 | 6.54 |
| 71-75 mo. | 3 | 46.66 | 1.15 | 47 | 46.38 | 5.72 | .28 |
| Family size | | | | | | | |
| 2-3 | 5 | 53.40 | 5.77 | 36 | 46.11 | 5.20 | 7.29 |
| 4 | 11 | 48.00 | 4.19 | 51 | 46.90 | 5.20 | 1.10 |
| 5-up | 15 | 52.06 | 4.09 | 65 | 45.29 | 5.72 | 6.77 |

TABLE XIX

COMPARISON OF LOW SELF-CONCEPT CHILDREN WITH HIGH SELF-CONCEPT CHILDREN ON SOCIAL-EMOTIONAL DEVELOPMENT

| Social-Emotional Development | Low SC | High SC | Difference |
|---|---|---|---|
| Number | 85 | 85 | |
| Mean | 101.28 | 104.74 | 3.46 |
| Standard Deviation | 14.18 | 15.71 | |

correlation coefficient of .04 between self-concept and social-emotional development, these results indicate little or no relationship exist between these variables.

Hypothesis Three

If kindergarten children score high on the Self-Concept and Motivation Inventory, then they will score high on each of the seven dimensions of the Metropolitan Readiness Test.

Table XX contains the mean differences in readiness scores for high self-concept and low self-concept kindergarten students. Children in the high self-concept group scored slightly higher on each of the seven dimensions of the Metropolitan Readiness Test than children in the low self-concept group. A correlation coefficient of .13 between self-concept and readiness development and the very small differences in mean scores indicate little relationship between these variables.

Hypothesis Four

If kindergarten children score high on the Self-Concept and Motivation Inventory, then they will score high on each of the five dimensions on the Stanford Early School Achievement Test.

Table XXI contains the mean differences in achievement scores for high self-concept children and low self-concept children. Children with high self-concept scored higher on all dimensions of the achievement test than children with low self-concept. A correlation coefficient of .21 indicates little relationship between self-concept and achievement. In view of the small differences in the means of the

TABLE XX

COMPARISON OF LOW SELF-CONCEPT CHILDREN WITH HIGH SELF-CONCEPT CHILDREN ON READINESS DEVELOPMENT

| | Low SC | High SC | Difference |
|---|---|---|---|
| Readiness-Matching | | | |
| Number | 85 | 85 | |
| Mean | 8.33 | 8.34 | .01 |
| Standard Deviation | 3.21 | 3.16 | |
| Readiness-Alphabet | | | |
| Number | 85 | 85 | |
| Mean | 10.66 | 11.72 | 1.06 |
| Standard Deviation | 4.38 | 3.88 | |
| Readiness-Numbers | | | |
| Number | 85 | 85 | |
| Mean | 12.75 | 13.05 | .30 |
| Standard Deviation | 4.52 | 4.36 | |
| Readiness-Copying | | | |
| Number | 85 | 85 | |
| Mean | 7.38 | 8.72 | 1.34 |
| Standard Deviation | 3.42 | 3.26 | |
| Readiness-Word Meaning | | | |
| Number | 85 | 85 | |
| Mean | 8.69 | 8.74 | .05 |
| Standard Deviation | 2.47 | 2.61 | |
| Readiness-Listening | | | |
| Number | 85 | 85 | |
| Mean | 10.34 | 10.61 | .27 |
| Standard Deviation | 2.35 | 2.05 | |

TABLE XX (Continued)

| | Low SC | High SC | Difference |
|---|---|---|---|
| Readiness-Total | | | |
| Number | 85 | 85 | |
| Mean | 58.17 | 61.18 | 3.01 |
| Standard Deviation | 15.30 | 13.44 | |

TABLE XXI

COMPARISON OF LOW SELF-CONCEPT CHILDREN WITH HIGH SELF-CONCEPT CHILDREN ON ACHIEVEMENT

| | Low SC | High SC | Difference |
|---|---|---|---|
| Achievement-Environment | | | |
| Number | 85 | 85 | |
| Mean | 34.42 | 35.12 | .70 |
| Standard Deviation | 4.77 | 4.28 | |
| Achievement-Mathematics | | | |
| Number | 85 | 85 | |
| Mean | 21.60 | 22.36 | .76 |
| Standard Deviation | 4.56 | 4.25 | |
| Achievement-Letters and Sounds | | | |
| Number | 85 | 85 | |
| Mean | 22.24 | 23.72 | 1.48 |
| Standard Deviation | 5.98 | 4.75 | |
| Achievement-Aural Comprehension | | | |
| Number | 85 | 85 | |
| Mean | 21.21 | 22.02 | .81 |
| Standard Deviation | 3.31 | 3.05 | |
| Achievement-Total | | | |
| Number | 85 | 85 | |
| Mean | 99.47 | 103.43 | 3.96 |
| Standard Deviation | 15.51 | 12.02 | |

achievement scores and the low correlation coefficient between low self-concept children and high self-concept children, hypothesis four was not supported.

Hypothesis Five

If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score higher on the Social-Emotional Behavior Inventory than kindergarten children enrolled in classes with only kindergarten children.

Table XXII and Table XXIII include group means for social-emotional development. Also, as a source of variation used in the comparison of the groups are age difference, family size, sex, and socio-economic status. Table XXII depicts a much higher mean for Group MGR on social-emotional development as evaluated by the kindergarten teachers. Table XXIII reveals a consistent pattern in social-emotional development as it relates to age and family size. Mean scores were higher in both categories for children in Group MGR. The Social-Emotional Inventory means are slightly different between the two types of school organization in favor of Group MGR, but the differences were insufficient to be considered significant.

Hypothesis Six

If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score higher on the Metropolitan Readiness Test than kindergarten children enrolled in classes with only kindergarten children.

TABLE XXII

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON SOCIAL-EMOTIONAL DEVELOPMENT

| Social-Emotional Development | MGR | T | Difference |
|---|---|---|---|
| Number | 31 | 152 | |
| Mean | 105.03 | 101.78 | 3.25 |
| Standard Deviation | 15.13 | 14.95 | |

TABLE XXIII

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON SOCIAL-EMOTIONAL DEVELOPMENT BY SEX, S.E.S., AGE AND FAMILY SIZE

| Variable | Group MGR Number | Group MGR Mean | Group MGR Standard Deviation | Group T Number | Group T Mean | Group T Standard Deviation | Difference |
|---|---|---|---|---|---|---|---|
| Sex: | | | | | | | |
| Boys | 19 | 104.10 | 17.14 | 74 | 97.35 | 14.48 | 6.75 |
| Girls | 12 | 106.50 | 11.78 | 78 | 105.97 | 14.24 | .53 |
| S.E.S. | | | | | | | |
| High | 23 | 108.26 | 13.77 | 109 | 102.96 | 14.78 | 5.30 |
| Low | 8 | 95.75 | 15.85 | 43 | 98.76 | 15.14 | -3.01 |
| Age | | | | | | | |
| 61-65 mo. | 11 | 103.27 | 16.76 | 52 | 102.42 | 14.46 | .85 |
| 66-70 mo. | 17 | 105.23 | 15.59 | 53 | 100.79 | 15.89 | 4.44 |
| 71-75 mo. | 3 | 110.33 | 4.50 | 47 | 102.72 | 15.57 | 7.61 |
| Family size | | | | | | | |
| 2-3 | 5 | 105.40 | 15.27 | 36 | 99.33 | 15.77 | 6.07 |
| 4 | 11 | 108.00 | 18.12 | 51 | 103.17 | 13.02 | 4.83 |
| 5-up | 15 | 102.73 | 13.27 | 65 | 102.67 | 15.34 | .06 |

Table XXIV and Table XXV contain an analysis of the data relevant to the effects of multigrade grouping and traditional grouping have on readiness. These tables include group means and standard deviations as well as a comparison of the two groups by sex, socio-economic status, age, and family size. The analysis indicates that the group means were very similar with a slightly greater mean achieved by the experimental group. Data presented in Table XXVI illustrate higher scores for girls and boys in the multigrade group than the traditional group. It appears that family size has little relationship to readiness, but children in Group MGR that have high socio-economic status scored higher on the Metropolitan Readiness Test than children from Group T with high socio-economic status. The data indicate for both groups that the older children scored higher on the readiness test than the younger children. The slightly higher Group MGR mean indicates little or no relationship exists between the single graded and vertically graded groups on readiness.

Hypothesis Seven

If kindergarten children are enrolled in classes with first grade children, then the kindergarten children will score higher on each of the five dimensions of the Stanford Early School Achievement Test than kindergarten children enrolled in classes with only kindergarten children.

For comparing the means and standard deviations of Group MGR and Group T on achievement scores, the data were tabulated for identification in Table XXVI and Table XXVII. The data from these tables

TABLE XXIV

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON READINESS DEVELOPMENT

| Readiness-Word Meaning | MGR | T | Difference |
|---|---|---|---|
| Number | 31 | 152 | |
| Mean | 8.13 | 8.88 | -.75 |
| Standard Deviation | 2.79 | 2.42 | |
| Readiness-Listening | | | |
| Number | 31 | 152 | |
| Mean | 10.19 | 10.56 | .37 |
| Standard Deviation | 2.46 | 2.08 | |
| Readiness-Matching | | | |
| Number | 31 | 152 | |
| Mean | 8.90 | 8.16 | .74 |
| Standard Deviation | 3.70 | 3.17 | |
| Readiness-Alphabet | | | |
| Number | 31 | 152 | |
| Mean | 11.97 | 10.86 | 1.11 |
| Standard Deviation | 4.01 | 4.23 | |

TABLE XXIV (Continued)

| Readiness-Numbers | MGR | T | Difference |
|---|---|---|---|
| Number | 31 | 152 | |
| Mean | 12.52 | 12.76 | -.24 |
| Standard Deviation | 5.31 | 4.26 | |
| Readiness-Copying | | | |
| Number | 31 | 152 | |
| Mean | 8.32 | 7.97 | .35 |
| Standard Deviation | 2.88 | 3.44 | |
| Readiness-Total | | | |
| Number | 31 | 152 | |
| Mean | 60.03 | 59.18 | .85 |
| Standard Deviation | 14.93 | 14.22 | |

TABLE XXV

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON TOTAL READINESS BY SEX, S.E.S., AGE, AND FAMILY SIZE

| | Group MGR | | | Group T | | | |
|---|---|---|---|---|---|---|---|
| Variable | Number | Mean | Standard Deviation | Number | Mean | Standard Deviation | Difference |
| Sex: | | | | | | | |
| Boys | 19 | 58.15 | 16.52 | 74 | 55.48 | 15.09 | 2.67 |
| Girls | 12 | 63.00 | 12.06 | 78 | 62.69 | 12.46 | .31 |
| S.E.S. | | | | | | | |
| High | 23 | 62.56 | 14.36 | 109 | 60.99 | 13.99 | 1.57 |
| Low | 8 | 52.75 | 15.01 | 43 | 54.60 | 13.94 | -1.85 |
| Age | | | | | | | |
| 61-65 mo. | 11 | 54.36 | 13.25 | 52 | 57.90 | 11.91 | -3.54 |
| 66-70 mo. | 17 | 60.76 | 15.18 | 53 | 58.03 | 16.15 | 2.73 |
| 71-75 mo. | 3 | 76.66 | 4.93 | 47 | 62.02 | 13.95 | 14.64 |
| Family size | | | | | | | |
| 2-3 | 5 | 61.80 | 13.47 | 36 | 55.19 | 15.31 | 6.61 |
| 4 | 11 | 62.90 | 13.85 | 51 | 62.58 | 12.60 | .32 |
| 5-up | 15 | 57.33 | 16.52 | 65 | 58.27 | 15.32 | -.94 |

TABLE XXVI

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON ACHIEVEMENT

| Achievement-Environment | MGR | T | Difference |
|---|---|---|---|
| Number | 31 | 152 | |
| Mean | 33.32 | 35.00 | -1.68 |
| Standard Deviation | 3.97 | 4.70 | |
| Achievement-Mathematics | | | |
| Number | 31 | 152 | |
| Mean | 23.35 | 21.70 | 1.65 |
| Standard Deviation | 3.45 | 4.47 | |
| Achievement-Letters and Sounds | | | |
| Number | 31 | 152 | |
| Mean | 22.42 | 23.11 | -.69 |
| Standard Deviation | 4.94 | 5.52 | |
| Achievement-Aural Comprehension | | | |
| Number | 31 | 152 | |
| Mean | 21.55 | 21.68 | -.13 |
| Standard Deviation | 3.25 | 3.54 | |
| Achievement-Total | | | |
| Number | 31 | 152 | |
| Mean | 100.65 | 101.63 | -.98 |
| Standard Deviation | 11.16 | 14.68 | |

TABLE XXVII

COMPARISON OF MULTIGRADE GROUPING WITH TRADITIONAL GROUPING ON TOTAL ACHIEVEMENT BY SEX, S.E.S., AGE, AND FAMILY SIZE

| | Group MGR | | | Group T | | | |
|---|---|---|---|---|---|---|---|
| Variable | Number | Mean | Standard Deviation | Number | Mean | Standard Deviation | Difference |
| Sex: | | | | | | | |
| Boys | 19 | 98.78 | 11.47 | 74 | 98.58 | 15.72 | .20 |
| Girls | 12 | 103.58 | 10.43 | 78 | 104.52 | 13.05 | -.94 |
| S.E.S. | | | | | | | |
| High | 23 | 101.39 | 11.47 | 109 | 103.77 | 14.14 | -2.38 |
| Low | 8 | 98.50 | 10.62 | 43 | 96.20 | 14.76 | 2.30 |
| Age | | | | | | | |
| 61-65 mo. | 11 | 96.36 | 11.92 | 52 | 100.21 | 13.81 | -3.85 |
| 66-70 mo. | 17 | 102.29 | 10.69 | 53 | 113.71 | 14.42 | -11.42 |
| 71-75 mo. | 3 | 107.00 | 7.54 | 47 | 104.59 | 14.05 | 2.41 |
| Family size | | | | | | | |
| 2-3 | 5 | 98.80 | 12.33 | 36 | 98.47 | 16.98 | .33 |
| 4 | 11 | 100.63 | 11.92 | 51 | 104.84 | 13.32 | -4.21 |
| 5-up | 15 | 101.26 | 10.96 | 65 | 101.03 | 14.57 | .23 |

indicate that the MGR and T group means were very similar with a slightly greater mean achieved by the traditional group. Children in the multigrade group scored higher on the mathematics section of the achievement test than children in the traditional group. The results did not support an advantage for Group T, although the mean differences were generally in favor of this group.

## SUMMARY

The following is a summation of the analysis of data as presented in this chapter.

The seven assumptions stated in Figure 2 served as a basis for deriving the seven hypotheses tested in this study. Neither the singly graded nor the multigraded groups yielded superior results for conformation of hypotheses one, five, six, and seven. Neither the low self-concept group nor the high self-concept group yielded superior results for conformation of hypotheses two, three, or four.

# CHAPTER IV

## SUMMARY AND CONCLUSIONS

It was the intent of this research to compare a specified type of school organization, multigrade grouping with the traditional type organization, single grade grouping, to determine if there was any measurable difference between the two types of school organization upon kindergarten students' self-concept, readiness, social-emotional development, and achievement.

Eight schools and ten kindergarten classrooms participated in the study. These schools and classrooms comprised the entire kindergarten attendance in Grayson County, Virginia.

It was felt by the investigator that multigrade classrooms at the primary level offered opportunities that could enhance self-concept, social-emotional behavior, readiness development, and achievement. The rationale for this belief was that the organization of multigrade classes could help teachers break away from the limitations of graded expectations, thus encouraging increased awareness and accommodation of individual differences and promoting growth in these four areas.

The study design included administering the Metropolitan Readiness Test, the Behavior Inventory, the Self-Concept and Motivation Inventory, and the Stanford Early School Achievement Test to secure the data for this study.

Means and standard deviations and the relationship between high and low self-concept on social-emotional behavior, readiness,

and achievement were analyzed. Coefficients of correlation were determined for each group and their relationship between each of the fourteen dependent variables. In addition, subgroups were identified within each comparative group; namely, age, sex, socio-economic status, and family size.

It was hypothesized that there would be a significant difference between multigrade and traditional grouping on self-concept, social-emotional development, readiness, and achievement. It was also hypothesized that there would be a significant difference between high self-concept and low self-concept children on social-emotional development, readiness and achievement.

While Chapter III presents an analysis of the data collected, a summary of the pertinent findings follows.

1. Kindergarten children in multigrade groups score only slightly higher on self-concept than kindergarten children in traditional classrooms.

2. Kindergarten children with high self-concept score only slightly higher on social-emotional development than kindergarten children with low self-concept.

3. Kindergarten children with high self-concept score only slightly higher on readiness development than kindergarten children with low self-concept.

4. Kindergarten children with high self-concept score only slightly higher on achievement than kindergarten children with low self-concept.

5. Kindergarten children in multigrade groups score only slightly higher on social-emotional development than kindergarten children in traditional classrooms.

6. Kindergarten children in multigrade groups score only slightly higher on readiness development than kindergarten children in traditional classrooms.

7. Kindergarten children in the traditional groups score only slightly higher on total achievement than kindergarten children in multigrade groups.

8. Boys, older children, and children from small families in the multigrade groups score only slightly higher on self-concept, social-emotional development, readiness development, and achievement than boys, older children, and children from small families in the traditional groups.

9. The results of this study lead to the conclusion that the types of classroom organization studied (single grade or multigrade) have little or no affect on self-concept, readiness, social-emotional development or achievement. There would appear to be other variables that result in the development of these factors.

## DISCUSSION

This writer views multigrade grouping as a workable alternative to the traditional single grade organizational plan without having detrimental effects on the growth of the children placed in the multigrade classes. Since neither group scored significantly higher

on any variable, one could further conclude that those who wish to facilitate the establishment of social climates that will encourage the intellectual, social, or personal development of every child through multigrade classes need not do so at the expense of growth in self-concept, social-emotional development, readiness development and achievement.

While the study fails to identify a relationship between self-concept and social-emotional development, readiness development, and achievement, it does not follow that such a relationship does not exist since it appears to show the instrument used to measure self-concept did not produce a valid measure of self-concept among kindergarten children in either group.

## SUGGESTIONS FOR FURTHER RESEARCH

Suggestions for further research are:

1. A follow-up study of the children included in this research to determine:

   a. Whether the same relationships exist three years hence between the kindergarten evaluations of self-concept, social-emotional development, and achievement and those made at the fourth grade level.

   b. Whether differences exist three years hence between the two groups in self-concept, social-emotional development, and achievement.

2. A study to determine the effects of an expanded program of multigrade grouping.

3. A study to determine whether parents who send their children to a school using multigrade grouping have different attitudes toward the school and toward the progress of their child than those parents who send their children to a school using single grade grouping.

Suggestions for revisions and improvements of the Behavior Inventory are:

1. Remove items four, thirty-one, and thirty-four to improve reliability.

2. Increase sample size for a more accurate measure of test-retest reliability.

3. Obtain a measure of interrater reliability by having two or more teachers evaluate the subjects.

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# APPENDIX A

# BEHAVIOR INVENTORY

# BEHAVIOR INVENTORY

Name of Child _____

| | | very much like | some what like | very little like | not at all like |
|---|---|---|---|---|---|
| 1. | Is easily distracted by things going on around him. | ____ | ____ | ____ | ____ |
| 2. | Is very suggestible. | ____ | ____ | ____ | ____ |
| 3. | Talks eagerly to adults about his own experiences. | ____ | ____ | ____ | ____ |
| 4. | Is unduly upset or discouraged if he does not perform well. | ____ | ____ | ____ | ____ |
| 5. | Often keeps aloof from others because he is uninterested, suspicious. | ____ | ____ | ____ | ____ |
| 6. | Is confident that he can do what is expected of him. | ____ | ____ | ____ | ____ |
| 7. | Is jealous, quick to notice and react negatively to attention bestowed on others. | ____ | ____ | ____ | ____ |
| 8. | Is methodical and careful in the tasks. | ____ | ____ | ____ | ____ |
| 9. | Is rarely able to influence other children by his activities. | ____ | ____ | ____ | ____ |
| 10. | Tries to figure out things for himself before asking others. | ____ | ____ | ____ | ____ |
| 11. | Greatly prefers the habitual and familiar to the novel and the unfamiliar. | ____ | ____ | ____ | ____ |
| 12. | Appears to trust in his own abilities. | ____ | ____ | ____ | ____ |

| | | very much like | some what like | very little like | not at all like |
|---|---|---|---|---|---|
| 13. | Has little respect for the rights of other children, refuses to wait his turn, etc. | ____ | ____ | ____ | ____ |
| 14. | Seems disinterested in the general quality of his performance. | ____ | ____ | ____ | ____ |
| 15. | Responds to frustration or disappointment by becoming aggressive or enraged. | ____ | ____ | ____ | ____ |
| 16. | Is excessive in seeking the attention of adults. | ____ | ____ | ____ | ____ |
| 17. | Sticks with a job until it is finished. | ____ | ____ | ____ | ____ |
| 18. | Is timid or shy. | ____ | ____ | ____ | ____ |
| 19. | Is considerate of others: waits turns, etc. | ____ | ____ | ____ | ____ |
| 20. | Is apprehensive or cautious. | ____ | ____ | ____ | ____ |
| 21. | Needs to be urged before engaging in activities. | ____ | ____ | ____ | ____ |
| 22. | Is reluctant to talk to adults; responds verbally only when urged. | ____ | ____ | ____ | ____ |
| 23. | Does not need attention or approval from adults to sustain him in his work or play. | ____ | ____ | ____ | ____ |
| 24. | When faced with a difficult task, he either does not attempt or gives up very quickly. | ____ | ____ | ____ | ____ |
| 25. | Likes to talk with or socialize with teacher. | ____ | ____ | ____ | ____ |
| 26. | Often will not engage in activities unless strongly encouraged. | ____ | ____ | ____ | ____ |

| | very much like | some what like | very little like | not at all like |
|---|---|---|---|---|
| 27. Emotional response is customarily very strong, over responds to usual classroom problems. | ____ | ____ | ____ | ____ |
| 28. Is uncooperative in group activities. | ____ | ____ | ____ | ____ |
| 29. Asks many genuine questions for information about things, persons. | ____ | ____ | ____ | ____ |
| 30. Usually does what adults ask him to do. | ____ | ____ | ____ | ____ |
| 31. Requires the company of other children, finds it difficult to work or play by himself. | ____ | ____ | ____ | ____ |
| 32. Responds to frustration or disappointment by becoming sullen, withdrawn, or sulky. | ____ | ____ | ____ | ____ |
| 33. Demonstrates imaginativeness and creativity in his use of toys and play materials. | ____ | ____ | ____ | ____ |
| 34. Insists on maintaining his rights, e.g., getting his turn. | ____ | ____ | ____ | ____ |

# APPENDIX B

## EXPLANATION OF MODEL IN FIGURE 1

Diagram of Relationships Among Concepts

| Causal | Intervening | End-result |
|---|---|---|
| | | Readiness |
| Multigrade Grouping | Self-Concept | Social-Emotional Development |
| | | Achievement |

A theory provides a bridge between language and experience. The two main parts of a theory are concepts, a part of language, and variables, which are summaries of experiences. A concept is composed of an idea and a word associated with that idea. A concept begins as an idea which is expressed in words. A variable is a set of classifications to which experiences may be assigned.[24]

The theory used in this research was built with concepts and variables. The relationships between the concepts were stated or implied as assumptions. Assumptions are connections between concepts. The concepts in this theory were either beginning or causal, intervening, or end-result.

All theories have a beginning and an end determined by the researcher. In this study the beginning concept, Multigrade Grouping, was an acceptable commencing point for this theory, and all relationships lead from this concept. Likewise, the three end-result concepts, Readiness, Social-Emotional Development, and Achievement, were selected

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[24]Nicholas C. Mullins, The Art of Theory: Construction and Use (New York: Harper & Row, Publishers, 1971), pp. 7, 61, 62.

by the researcher as the end points for the theory. Self-concept appeared to be an intervening concept which was affected by Multigrade Grouping and in turn affected students' Readiness, Social-Emotional Development, and Achievement. Hence, it was built onto the theory.

In order to test a theory, a measureable variable must be established for each concept. In this study the variables were defined in the Definitions section and incorporated into the hypotheses. The results of the data analysis then provided evidence to either support or not support the hypotheses and, thereby, the assumptions.

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# A COMPARISON OF KINDERGARTEN CHILDREN IN MULTIGRADE AND TRADITIONAL SETTINGS ON SELF-CONCEPT, SOCIAL-EMOTIONAL DEVELOPMENT, READINESS DEVELOPMENT, AND ACHIEVEMENT

by

Sidney Belt Harvey

(ABSTRACT)

## Problem

The purpose of this study was to analyze the effects of multigrade grouping on self-concept, social-emotional development, readiness development, and achievement at the kindergarten level.

The need for this study arose from the mandate from the State Board of Education concerning kindergarten education in Virginia. Since school divisions may be inclined to combine kindergarten and first grade children to financially accommodate this mandate, research was needed to assure those making such decisions that there are at least no major detrimental effects on the growth of kindergarten children placed in the multigrade classes.

## Procedure

The study encompassed the entire (N=183) kindergarten population of Grayson County for the school year 1972-73. The experimental group consisted of (N=31) kindergarten children organized in three multigrade groups with first grade children. The control group consisted of (N=152) kindergarten children arranged in seven singly graded classes.

Four instruments were used to secure data for the study. Readiness scores were secured by use of the Metropolitan Readiness Test. The Behavior Inventory was utilized in determining social-emotional development. The Stanford Early School Achievement Test was administered to determine achievement scores. The Self-Concept and Motivation Inventory furnished the scores for the comparison of self-concept.

Since the entire population of kindergarten students in both the multigrade and traditional groups were used in this study, inferential statistics were inappropriate. The hypotheses were tested by comparison of population means. The differences between these means were actual differences.

## Conclusions

The seven hypotheses tested to ascertain the affects of multigrade grouping at the kindergarten level on self-concept, social-emotional development, readiness development, and achievement were derived from the thesis that kindergarten children in a multigrade setting will develop a more positive self-concept and progress faster in the areas of social-emotional development, readiness, and achievement than kindergarten students in the traditional setting.

The conclusions which emerged from this study were as follows:

1. Kindergarten children in multigrade groups score only slightly higher on self-concept than kindergarten children in traditional classrooms.

2. Kindergarten children with high self-concept score only slightly higher on social-emotional development than kindergarten children with low self-concept.

3. Kindergarten children with high self-concept score only slightly higher on readiness development than kindergarten children with low self-concept.

4. Kindergarten children with high self-concept score only slightly higher on achievement than kindergarten children with low self-concept.

5. Kindergarten children in multigrade groups score only slightly higher on social-emotional development than kindergarten children in traditional classrooms.

6. Kindergarten children in multigrade groups score only slightly higher on readiness development than kindergarten children in traditional classrooms.

7. Kindergarten children in the traditional groups score only slightly higher on total achievement than kindergarten children in multigrade groups.

8. Boys, older children, and children from small families in the multigrade groups score only slightly higher on self-concept, social-emotional development, readiness development, and achievement than boys, older children, and children from small families in the traditional groups.

9. The results of this study lead to the conclusion that the types of classroom organization studied (single grade or multigrade)

have little or no effect on self-concept, readiness, social-emotional development or achievement. There would appear to be other variables that result in the development of these factors.