1-1-1985

The Evaluation of the Effectiveness of Mastery Learning, Whole Group Pacing for Reading Instruction in the Clarkson Elementary School

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THE EVALUATION OF THE EFFECTIVENESS OF MASTERY LEARNING, WHOLE GROUP PACING FOR READING INSTRUCTION IN THE CLARKSON ELEMENTARY SCHOOL

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Presented to the

Graduate Faculty
University of Nebraska
at Omaha

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In Partial Fulfillment
of the Requirements for the Degree
Specialist of Education

****

by

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FIELD PROJECT ACCEPTANCE

Accepted for the Graduate Faculty, University of Nebraska, in partial fulfillment of the requirements for the degree Specialist in Education, University of Nebraska at Omaha.

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Chairman

4/4/85
Date

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Chapter 1

INTRODUCTION

The teaching of reading to elementary students is a very important task for teachers. Children enter school with a wide range of abilities and potentials. The child's experience in language building activities can play a significant role in that child's success in reading. Schools are challenged to receive all children as they are and develop reading skills through an articulated K-6 curriculum so as to provide all children with the ability to perform successfully in the academic areas of the secondary school.

Educational strategies run in cycles. Methods of teaching reading are no exception. Years ago the majority of elementary teachers taught reading as a whole group. Ten to twelve years ago the idea became popular to group for reading. The most popular method of grouping became the three groups, or high, middle, and low group method. Students would be put in one of these three groups as kindergarteners or first graders, with all members of a group displaying a similar degree of skill. Much of this placement depended on the child's experience base and the amount of parent involvement the child received prior to entering school. With the increased number of children participating in preschool education, the gap between the high and low extremes in ability within a peer group became larger. It was easy to see the dilemma facing the schools.

With the era of the three groups came the plan of establishing different expectations for students within the various groups. Even though the gap was significant upon entry to school, the gap after sixth grade was much larger. Low achieving students placed in the bottom reading group often moved on to grade seven even though they were reading at the fourth or fifth grade level.

Being placed in a reading group also had an affect on a child's self concept and motivation. Findley and Bryan (1975) reported that ability grouping inflated the self-esteem of students assigned to high groups and reduced the esteem of those in average ability groups. They also reported that the disparity in motivational levels increased with the grouping process. Furthermore, social relationships were formed and sometimes limited to whom a child rubbed elbows with in a reading group. Role models for the students in the top group were different than those found in the middle and lower groups. It is no wonder law suits are popping up over the unequal education received through the use of tracking.(Foster, 1984)

The educational cycle continues. Mastery learning in the 1920's included the Winnetka Plan developed by Carleton Washburne. Henry C. Morrison designed a mastery learning plan for the University of Chicago Laboratory School in 1926. John B. Carroll modernized mastery learning in 1963.(Horton, 1981) Benjamin Bloom (1984) has had the "feedback-corrective" phase in the spotlight since 1976.

Of all the variables which affect student achievement, Bloom found that 70 percent of the students involved in mastery learning attained the summative level of achievement reached by only the highest 20 percent of the students under conventional instructional conditions.

Clarkson Elementary School in Fremont, Nebraska has moved from the use of homogeneous grouping for reading instruction to the use of whole group paced, mastery learning in reading for students in kindergarten through sixth grades. The transition has been gradual. In 1982 teachers for kindergarten and first grade were asked to use whole group pacing for their students as they progressed through the Houghton Mifflin Reading Program. This meant all kindergarteners would be taught all lessons of Level A: Getting Ready to Read. First grade teachers began all of their students at the beginning of Level B: Rockets. Students were taught each skill together with the teacher using whole group instruction techniques. Practice time for each skill varied according to each student's needs. When the teachers felt all students were ready, the assessment test was given. Students achieving a green or mastery on this test could attempt a bonus sheet from the Houghton Mifflin Resource Booklet or some other enrichment activity. Students scoring below mastery were retaught as a group and then retested. Regardless of the retest results, all students joined together to repeat the same cycle for the next learning unit or objective. Achievement scores were

obtained and a self concept measure was administered. Results were positive and the plan was continued for the next year.

In 1983 students in kindergarten, first, and second grades were using the whole group pacing for reading. A similar plan was followed with similar results. The plan was to move up one year at a time. However talk among staff was very positive about this strategy. Mastery learning became of greater interest to staff members. In the spring a vote was unanimous for our whole school to use mastery learning and whole group pacing for reading instruction. The goal is for all students to successfully complete Levels A-M by the end of their elementary school years.

STATEMENT OF THE PROBLEM

The purpose of this study was to assess the effectiveness of mastery learning and whole group pacing for reading instruction in Clarkson Elementary School, Fremont, Nebraska.

LIMITATIONS

This study was limited to students attending the Clarkson Elementary School in Fremont, Nebraska and a selected and matched group of students from the other nine elementary schools in Fremont. Special attention was placed on third grade students. The areas of consideration were total reading and self concept.

ASSUMPTIONS

It was assumed that the California Achievement Test and

the Gates-MacGinitie Reading Test were valid measures of student achievement.

It was assumed that all teachers in Clarkson School followed the Houghton Mifflin Reading Program using the mastery learning format of instruction, test, and enrichment, or reteach and retest.

STATEMENT OF THE HYPOTHESES

HYPOTHESIS NUMBER ONE

It was hypothesized that there was no significant difference in reading achievement when children were taught reading using whole group paced, mastery learning and homogeneous grouping.

HYPOTHESIS NUMBER TWO

It was hypothesized that there was no significant difference in students' self concept when children were taught using whole group paced, mastery learning and homogeneous grouping.

METHODOLOGY

The procedure for testing hypothesis number one was to compare California Achievement Test scores for third grade students using mastery learning and whole group pacing in Clarkson School to a matched group of students who were taught with homogeneous grouping in other schools. In addition, other indicators of progress such as skill cards and magazine test scores were assessed to compare the percent of students who were achieving mastery through Houghton Mifflin's management system.

The procedure for testing hypothesis number two was to identify or develop a self concept measure and assess the students using mastery learning and whole group pacing in Clarkson Elementary School and compare them with the match group of students who were taught with homogeneous grouping in the other schools.

DEFINITIONS

The term "mastery" referred to a minimum achievement level of 90%.

The term "mastery learning" in this paper referred to the following teaching structure:

A. Instruction and practice

B. Assessment

C. Mastery students pursued enrichment activities

D. Non-mastery students were retaught and retested

The term "homogeneous grouping" referred to the practice of assigning students to a group because of a similarity in performance level.

The term "heterogeneous grouping" referred to a natural, arbitrary assignment of students to a peer group.

The phrase "whole group pacing" referred to an absence of grouping for any purpose other than a short term remediation or practice situation. All members of a class began each new learning unit or objective together.

SIGNIFICANCE

This study was important because student achievement

and student self concept were addressed. It was hoped that whole group pacing would keep all students achieving at a rate appropriate for each grade level. By accomplishing this, students would feel much better about reading, school, and self. It was hoped that students would maintain a positive attitude toward meeting all expectations.

ORGANIZATION

The final report included the following:

Chapter 1 - Introduction

Chapter 2 - Review of Related Research

Chapter 3 - Methodology

Chapter 4 - Presentation of Data and Findings

Chapter 5 - Summary, Conclusions, and Recommendations

Chapter 2

REVIEW OF RELATED RESEARCH

The research relative to mastery learning and whole group pacing was very mixed about what works and what doesn't seem to work. Individualized instruction was discussed by George Weber (1977). He reports that true individualized instruction was difficult if not impossible to provide. Planning instruction for individual interests, learning styles, and stages of learning was a dubious task. Those who have attempted to provide this type of instruction have not proved that learning was any greater. Even so, when schools attempted to provide individualized instruction, they found the job so impossible that, more often than not, what resulted was another form of grouping. This practice was described as providing instruction which was appropriate for a group of students which had similar characteristics. Yet, when Weber examined the factors of interests, learning styles, and stages of learning, it was obvious that all children placed in the groups did not display the same characteristics. Thus the result was actually to group by level of performance.

Johanna S. Hunsaker and Will Roy (1977) expressed their belief that individualized instruction was an undesirable structure for learning because it neglected the social development of the students. Little interaction took place, thus interpersonal or group skills were not used. The use of packets and individual units usually accompanied

individualized instruction. Hunsaker and Roy also felt that this prompted student loneliness, alienation and boredom. Following use of the phrase "mechanical worksheets," it was stated that the individual process may increase students' dislike of school and created student dissatisfaction with the learning process.

Karen Kepler and Jill Weinick Randall (1977) speculated that the dropping of whole group pacing for instruction came about due to the loud outcry of concerns in the 1960's for accountability within the schools. Alternatives were proposed, almost as if anything would be better than what we were using.

For elementary schools, social goals were an important part of the program. Children made a transition from family life to community life, with the primary objective including cooperative play and basic skills to learn. Individualized instruction made this difficult to accomplish. They were too busy moving from one skill to the next, as they completed one worksheet and began another. Teachers were spending more time dispensing, directing, and correcting than actually teaching. Children had to be self-motivating and independent to succeed. Teachers had to be satisfied with management tasks rather than instructional tasks.

It was true, there were many reasons to look at individualized instruction. Ideally it could provide a wonderful education for each individual who entered school. But with the wide ranges in abilities, needs, and interests,

could any teacher be expected to accomplish this with a whole room full of students? John N. Drowatzky (1981) believed that every human has the potential for almost unlimited development and education has the power to overcome all handicaps and inequalities. But what educational program or structure provided the opportunity for the most achievement?

Drowatzky (1981) reviewed tracking or ability grouping. The first requirement was to identify the criterion for placement into a group or track. To identify students, teacher observation and testing were the most common procedures. However, problems still remained. Once groups or ability levels were alligned, instruction for each group needed to be examined. Time for instruction tended to be equal, but this meant that the higher achieving students progressed farther than the lower achieving students. An achievement gap was accentuated over time. Quality of instruction was found to be higher with the higher achieving students. Planning and organization went into new lessons for the top group, while instruction for lower groups often came from what the teacher remembered after instructing the top group earlier. It was also noted that little movement ever took place between groups once a child was placed within a group.

James E. Rosenbaum (1980) examined grouping for its social impact. Before he did that, he tried to answer the question, "Does ability grouping influence students'

achievement?" His conclusions indicated that research was inconclusive on this point. A similar uncertainty was concluded on the social outcome of ability grouping. The expected findings were that students in higher achieving groups had higher self-evaluations and lower achieving students had the opposite. Research on these issues was mixed. Yet, a majority of studies found that ability grouping hurts the self-evaluations of average and low-ability students. Even within a group, students at the low end of the achievement scale had a lower self-evaluation regardless of what group they were in. This accounted for the following examples of descriptions used for children in the low group:

> "Kids in the bottom group don't care..."
>
> "I'm in the high group...Kids in the other group are retards."
>
> "They're just not good enough..."
>
> "Makes me feel like I'm not much good. This puts you off school and soon you spend most of your time trying to avoid work."
>
> "Being put in a low group you feel like, well, you're being put there out of the way. It's sort of a punishment for being too dumb to do the work. You feel that if other kids can do it, why can't you...there has to be something wrong."

Rosenbaum also speculated that ability grouping seemed to affect students' chances of pursuing the college prep

curriculum, the general curriculum, or the vocational curriculum. Is it possible that once a student is placed in the low reading group in first grade that chances for going to college are realistically gone?

An interesting study by Michael W. Kibby (1977) studied a group of lower achieving students in the high reading group and compared their attitudes and self concepts against a group of the best readers in the low reading group. Students shared feelings reflective of their status within the group. Since status was felt to be important within the room, as evidenced by grouping, students at the low end of the high group had more negative feelings toward reading, school, and self than did the less able reading students who were at the high end of the low group.

Wilburn Schrank (1968) found another example of the effect grouping can have on teachers and students. Even though grouping was random, participants were told that ability grouping was being used. This labeling had an effect on students through perceived expectations. The labeling effect also affected the way teachers perceived their students and, in some cases, the quality of preparation and instruction. One incidence related to a substitute teacher who quickly realized how intelligent the class was because she discovered the students' I.Q.'s listed beside their names in the grade book. What a great day the substitute had. She shared stories of excellence with the regular teacher. Everything seemed great until the substitute found out from the regular teacher that

the numbers in the grade book were locker numbers. (Guskey,1982)

In a review of research on ability grouping, Fritz Hess and others (1978) found several studies that concluded the affects of this technique. It was found that homogeneously grouped children were superior in reading. This was countered by other studies that found homogeneous grouping does not necessarily provide a setting for greater gain in reading achievement. Many studies concluded that achievement increased in advanced groups, but seemed to cause difficulties in learning for all other groups. It was found that no significant differences in academic achievement resulted from grouping primary school students. A 1968 National Education Association survey of research concerning ability grouping and scholastic achievement failed to establish the superiority of either homogeneous or heterogeneous grouping. This NEA study suggested that factors other than grouping were the primary determinants of academic achievement differences. Leonard Marascuilio (1970) and John Wardrop (1967) have concluded through their research that low ability children perform better under heterogeneous grouping, while high ability children perform equally well under either homogeneous or heterogeneous grouping. High achievers seemed to profit under either technique, while low achievers seemed harmed by homogeneous grouping.

Stanley Levenson (1979) presented a strong case against ability grouping. He too acknowledged mixed results from

research on achievement gains with grouping practices. Most of his attention was spent explaining the effects of grouping on children's self-evaluations. Although grouping by performance is disguised by names such as "Bluebirds", "Redbirds", "Robins" for "High", "Middle", and "Low" reading groups, children really know which group is which. Once placed in a group, students usually remain there throughout their elementary years. Stanley cited evidence that children equated assignment to a low group like membership in a disadvantaged group. Teachers formed attitudes toward their low group and children usually performed up to or down to those expectations. Stanley cited a study by Walter R. Borg (1965) as showing heterogeneous grouping had a positive effect on concepts of self, feelings of belonging, and reduction in antisocial tendencies for all ranks. Another study showed that gifted students had a positive influence on non-gifted students in both achievement and personality factors, such as self-attitude, interests, and school attitude. Warren Findley and Miriam Bryan (1975) provided the U. S. Office of Education with evidence that socio-economic and social class differences were increased by ability grouping practices and decreased by heterogeneous grouping. The effects of grouping low achievers was that of a feeling of inferiority. Ruth Love Holloway (1971) found that top students who were grouped, developed a feeling of superiority, snobbery, and a false sense of self.

With so much of the research contrary or at least mixed as to the effectiveness of ability grouping, teachers still use it

extensively. The question is, "Why?" Is there no alternative? Gaining popularity is the idea of mastery learning. This structure for teaching dates back to the seventeenth century. Today the mastery learning model used most was that developed by John B. Carroll in 1963. The philosophy of mastery learning maintains that almost all students are capable of displaying mastery on most school tasks. Some proponents say that through the use of mastery learning, what is achieved now by only the top 20% of the students using traditional means, 95% of the students can achieve.

Forerunners in mastery learning shared many features of this present model. The features most stated were listed by Lowell Horton (1981) as:

1. They described what, in terms of particular educational objectives, each learner was expected to accomplish.
2. They were composed of well defined learning units.
3. The learning materials were systematically arranged.
4. Mastery of lesser tasks was required before the learners were allowed to move on to more sophisticated tasks.
5. There was a discernible sequence in the materials so that learning was built on previous learning.
6. Ungraded, diagnostic progress tests were used

as an integral part of the process.

7. Frequent and regular feedback was provided.

8. The instructional task was supplemented with corrective learning material throughout.

The mastery model was divided into six components by Horton. First the curriculum must be broken into small learning units or objectives. They must be stated in behavioral terms and measurable. Objectives must be sequential. Next, each learner's present level of performance must be assessed. Cognitive entry skills as well as affective entry behaviors are important. The third component deals with instruction. In a well designed and managed mastery learning model, instruction keys in on the necessary strategies for each student to master. Once instructed, diagnostic assessment measures student progress with a special purpose of identifying the skill or concept which may be hindering students' mastery. This component then allows for prescriptive tasks which will remediate students so that during the final assessment, mastery will be achieved.

Mastery learning sounded like good instruction to Horton. It was different from other models. The first difference was the level of specificity of each step. Planning and organization took place long before instruction began. Content was laid out in a more logical and sequential order. The most significant difference was in the attitude displayed toward each student's potential. This was described as optimistic and generous. Teachers must believe in what they can accomplish

and that each child is capable of reaching mastery. This attitudinal factor was more effective if carried from teacher to teacher, grade to grade throughout the entire school.

Implications for the classroom were fit into three categories by Horton: planning for mastery, teaching for mastery, and management for mastery. The planning step was extensive. This actually required more work, especially in the initial steps. The philosophy must be understood, and the commitment must be developed. Then planning of objectives, prerequisites, and tests were to take place. After this detailed planning, teaching for mastery had to be developed. Parents were informed, grading procedures explained, and expectations shared during orientation sessions. During teaching six steps were followed:

1. Allow students adequate time to practice each new skill.
2. Provide frequent, regular, and direct reinforcement.
3. Give students cues to help them select the appropriate responses.
4. See that all students participate actively in the learning tasks.
5. Furnish direct instruction in the learning task.
6. Monitor each student's work carefully and often.

James H. Block (1979) listed five behaviors required for

mastery learning. They were:

1. Diagnosis: the accurate prediction of each student's future performance based on her/his present and past history;
2. Prescriptions: the provision of appropriate learning tasks for each student based on the teacher's diagnosis;
3. Orientation: the clarification of each learning task for each student in terms of what is to be learned and how it is to be learned;
4. Feedback: the provision of constant information to each student regarding learning progress;
5. Correction: the provision of timely supplemental instruction for each student whose learning progress is insufficient.

One of the most important management tasks was simply providing an atmosphere conducive to mastery learning. Supportive and nuturing, yet businesslike and task oriented. Block (1979) listed six concepts which lie at the heart of his "self-mastery" model. These were:

1. That humanistic educators believe that all students can learn excellently in the self-developmental or emotional domains;
2. That they believe they can teach so that virtually all students will learn excellently in these domains;

3. That they approach their instruction systematically so that it provides a bridge between learners and outcomes;

4. That they clearly define the self-developmental or emotional outcomes they wish to pursue;

5. That they provide appropriate help in learning each outcome as well as appropriate learning time;

6. And that they personalize their student evaluations.

Some of the writers made a point of questioning all the attention placed on the type of instructional plan. Other factors were pointed out as having more influence. These factors included the overall competence of the staff. It was conjectured that with a truly dedicated staff, any teaching structure could prove successful for students. Another factor was the nature of the plant or facility. Size and brightness of the rooms were important. Class size and teacher/student ratio may have a bearing. The role and involvement by the principal in articulating the school's curriculum was also important.

However, once an instructional plan is chosen, it is important to examine not only the strengths of a plan, but also the questions and concerns brought up by research. One of the questions raised was the need for such highly specified objectives. Most educators could agree on broad educational goals, but it was much more difficult to agree on the

sequential objectives. This process required considerable time for staffs to complete. Philosophical disagreements came up regarding the questions, "Do we teach kids?" or "Do we teach skills?" Another concern was the diagnostic and assessment tools required for mastery learning. More and better instruments were needed. Corrective materials often needed to be written by teachers since they were not readily available. The question of time necessary for planning and teaching was mentioned. It was felt that additional class time was needed for whatever subjects mastery learning were used. This would cause other areas, often the fine arts areas, to suffer.

L. B. Resnick (1977) questioned the practice of holding the whole class back until mastery. He stated that if a class was to proceed to new units together, allowing teachers to use whole class instruction, then it was likely that the faster students were held back waiting for the slower students to catch up. Block (1974) responded to that idea by stating that under appropriate instructional conditions, there are really very small differences in the rate of learning. B. S. Bloom (1976) followed by stating that the differentiation between good and poor learners, or fast and slow learners, tends to be reduced to a point where it is difficult to measure in hours and minutes. Marshall Arlin (1984) has studied mastery learning over the years. He has questioned the ability of students to retain material learned through mastery learning.

The related research that has been reviewed on the previous pages pertains to individualized instruction,

homogeneous and heterogeneous grouping, and mastery learning. This research served as a basis for the planning, implementation, and evaluation of the mastery learning, whole group pacing plan for reading instruction used at Clarkson Elementary School in Fremont, Nebraska.

Chapter 3

METHODOLOGY

The purpose of this study was to evaluate the effectiveness of mastery learning and whole group pacing for reading instruction in Clarkson Elementary School, Fremont, Nebraska. In order to conduct this study, two groups of students needed to be identified. Characteristics of students within each group were matched as closely as possible. School size, number of students in each group, and economic factors were considered in identifying two matched groups.

The group of students selected within Clarkson School was the entire third grade class. This group of 29 students was selected because students had been taught reading using mastery learning, whole group pacing since their enrollment into kindergarten. A matched group of third graders at one of the remaining nine elementary schools in Fremont was selected using the above stated criteria. This group was to serve as the control group because it did not use mastery learning and did use homogeneous grouping for reading instruction. Special education students were not included in either group for this study.

The purpose of this study was reviewed with the Assistant Superintendent for Elementary Education and the building principal of the school with the control group. It was agreed to use gathered data provided individual student names were not used. The primary procedure was explained as

the gathering of data and the analysis of these data with respect to the stated hypotheses.

The data that were analyzed were the California Achievement Test scores for the total reading achievement of all students within both groups of third graders. This test had been administered in September 1984. Results were obtained from the records kept by both building principals.

The second set of data were the results of a self concept measure administered to all students in December 1984. The Piers-Harris Children's Self Concept Scale was the selected instrument. Purschase of the instrument was made through Western Psychological Services.

A 't' test was used to test each of the following hypotheses:

> Hypothesis number one stated that there was no significant difference in reading achievement when children were taught reading using whole group paced, mastery learning and homogeneous grouping.
>
> Hypothesis number two stated that there was no significant difference in students' self concept when children were taught reading using whole group paced, mastery learning and homogeneous grouping.

Analysis was also made to ensure comparability of the identified groups. A 't' test was used to determine if a significant difference existed with the I.Q. scores from the

results of The Short Form Test of Academic Aptitude, Level 1, which was administered to all students in September 1984.

Chapter 4

PRESENTATION OF DATA AND FINDINGS

Clarkson School was the only one of ten elementary schools in Fremont, Nebraska which used mastery learning, whole group pacing for reading instruction in all grades Kindergarten through six. At the beginning of the 1984/85 school year, all students were expected to progress satisfactorily through the reading curriculum identified as appropriate for each grade level. Since Houghton Mifflin was the prescribed program, the sequence was:

Kindergarten:	Level A, Getting Ready to Read
Grade One:	Level B, Rockets
	Level C, Surprises
	Level D, Footprints
	Level E, Honeycomb
	Level F, Cloverleaf
Grade Two:	Level G, Sunburst
	Level H, Tapestry
Grade Three:	Level I, Windchimes
	Level J, Passports
Grade Four:	Level K, Medley
Grade Five:	Level L, Banners
Grade Six:	Level M, Beacons

In years previous this pace was followed only by students in the top group. The mastery learning format of teach, practice, test, and enrichment, or reteach and retest, was incorporated by all teachers. Emphasis was

placed with all students that they were expected to progress satisfactorily through the above sequence.

Considerable deliberation went into the changes from homogeneous grouping to whole group pacing. Teaching strategies were different, but mastery learning would satisfactorily allow for this. Concern over students at the extremes was discussed. Very low achieving students, who were going to have to acquire and practice acceptable study skills and reading skills at a faster rate, were thought to experience frustration and failure. Very high achieving students were suspected of being bored and not allowed to grow to their highest potential.

The purpose of this study was to evaluate the effectiveness of mastery learning and whole group pacing for reading instruction at Clarkson School, Fremont, Nebraska.

Hypothesis number one stated that there was no significant difference in reading achievement when children were taught reading using whole group paced, mastery learning and homogeneous grouping.

The procedure for testing hypothesis number one was to compare total reading achievement scores from the California Achievement Test for students in the third grade at Clarkson School with scores of third grade students at the other elementary school which used homogeneous grouping for reading instruction.

These data were recorded on a table and a graph. Table I and Table II show total reading achievement scores by

TABLE I

READING ACHIEVEMENT SCORES
FOR CLARKSON GROUP A

STUDENT	G.E.	%ILE
A	5.2	94
B	4.4	86
C	4.0	78
D	3.9	76
E	3.7	71
F	4.1	82
G	3.7	71
H	3.6	67
I	2.9	47
J	2.8	45
K	2.7	40
L	3.6	67
M	3.1	67
N	2.5	35
O	2.4	33

Note: Table I lists the total reading achievement scores by grade equivalent (G.E.) and the corresponding percentile (%ILE) for students in Clarkson School group A. These students were not grouped for reading instruction. For purposes of listing and comparing, teacher A listed her students as if they were in the traditional three group method. Students A-E would have been in the top group, students F-K in the middle group, and students L-O in the bottom group.

TABLE II

READING ACHIEVEMENT SCORES
FOR CLARKSON GROUP B

STUDENT	G.E.	%ILE
A	4.4	86
B	4.1	82
C	3.9	76
D	3.9	76
E	3.5	63
F	3.9	76
G	3.5	63
H	3.2	53
I	3.1	51
J	3.0	49
K	3.0	49
L	2.8	45
M	2.8	45
N	2.7	42

Note: Table II lists the total reading achievement scores by grade equivalent (G.E.) and the corresponding percentile (%ILE) for students in Clarkson School group B. These students were not grouped for reading instruction. For purposes of listing and comparing, teacher B listed her students as if they were in the traditional three group method. Students A-E would have been in the top group, students F-K in the middle, and students L-N in the bottom.

grade equivalent and national percentile of the 29 students in the third grade at Clarkson School. Even though grouping was not practiced, teachers were asked to identify students by the traditional three group method as if grouping was used. This request was made for the purpose of listing and comparing students.

Table III and Table IV show total reading achievement scores by grade equivalent and national percentile of the 30 students in the third grade at the other elementary school which practices homogeneous grouping.

Graphs I, II, III, and IV show a plotting of all four groups of students. Grade equivalent scores range from 5.2 to 2.4. Students were listed from the highest of the top group, Student A, to the lowest of the bottom group, Student O. Graph V shows all four group's achievement scores plotted on the same grid, which illustrated the same general slope for each group.

Graph VI shows the results of the 't' test for achievement scores. The difference was 4.48. This value was not significant at the .05 level of significance.

Hypothesis number two stated that there was no significant difference in self concept when children were taught using whole group paced, mastery learning and homogeneous grouping.

The procedure used to test hypothesis number two was to administer The Piers-Harris Children's Self Concept Scale to all 59 students in the study. The measure was composed of

TABLE III

READING ACHIEVEMENT SCORES
FOR CONTROL GROUP A

STUDENT	G.E.	%ILE
A	5.2	94
B	4.7	90
C	3.6	67
D	3.6	67
E	3.5	63
F	3.3	59
G	3.1	51
H	2.7	40
I	2.7	40
J	2.6	39
K	2.3	29
L	3.0	49
M	2.6	39
N	2.5	35
O	2.5	35

Note: Table III lists the total reading achievement scores by grade equivalent (G.E.) and the corresponding percentile (%ILE) for students in control group A. These students were homogeneously grouped for reading instruction. Students A-F were in the top group, students G-K were in the middle group, and students L-O were in the bottom group.

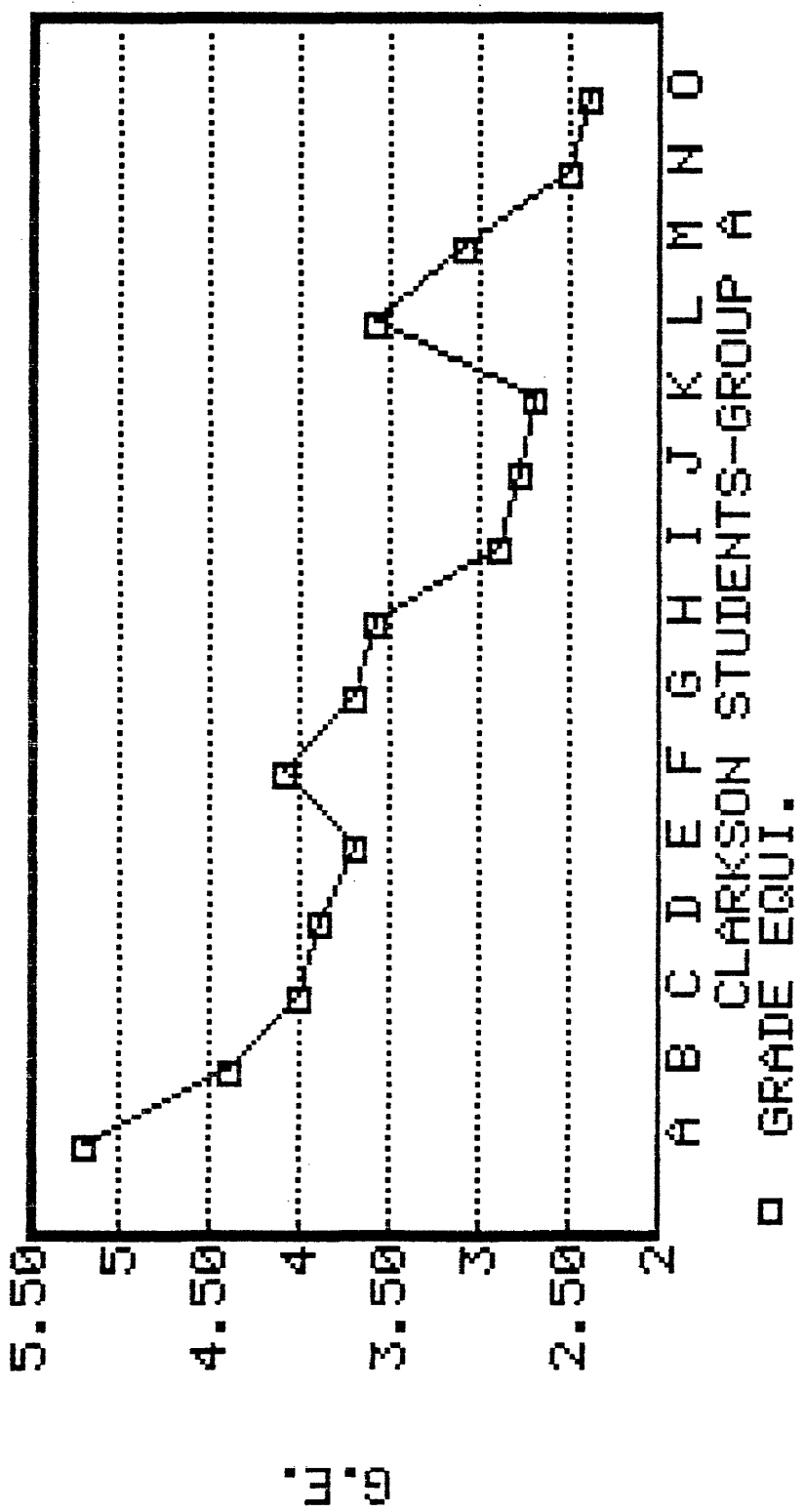
TABLE IV

READING ACHIEVEMENT SCORES
FOR CONTROL GROUP B

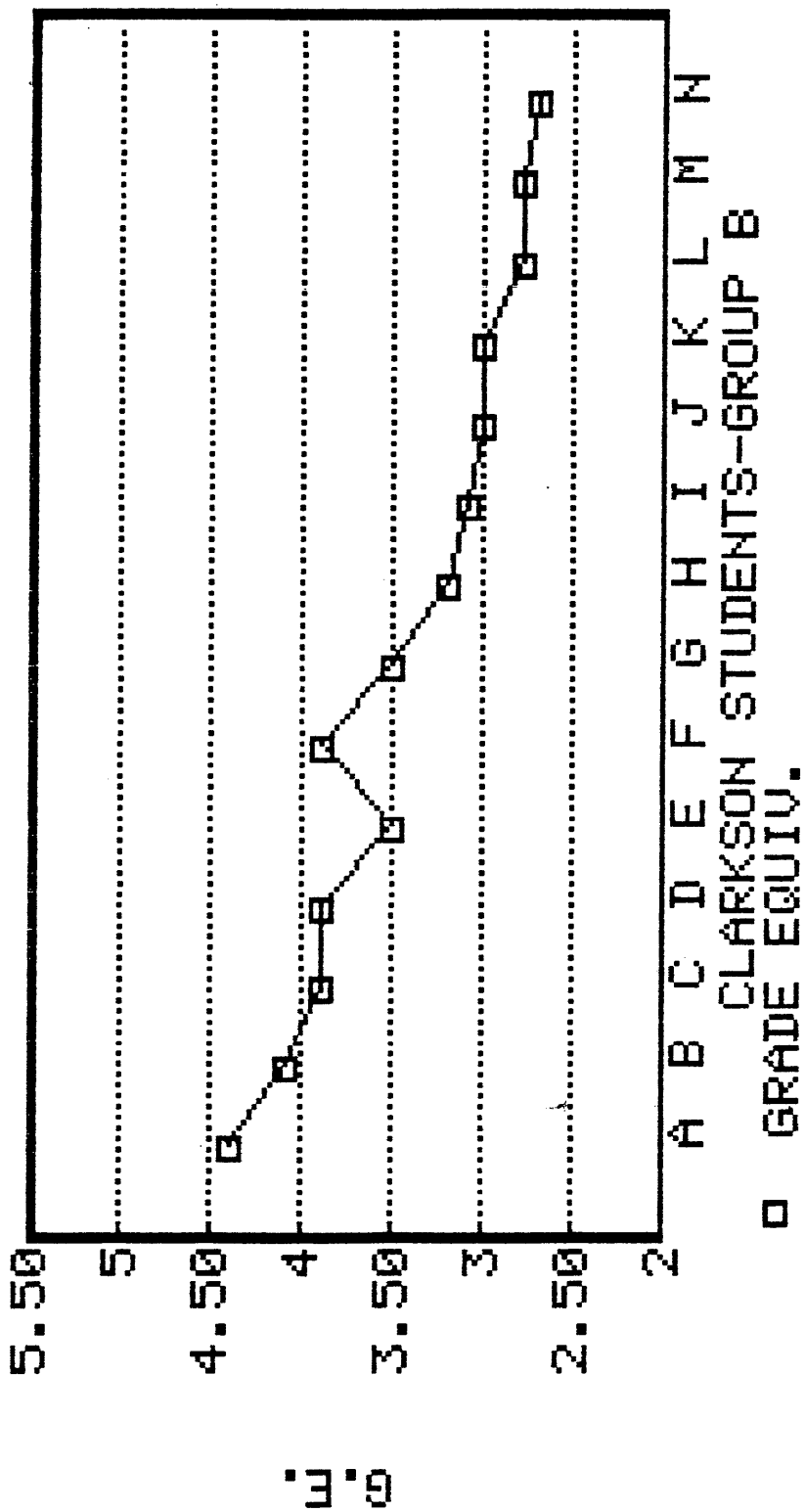
STUDENT	G.E.	%ILE
A	5.2	94
B	4.7	90
C	3.6	67
D	3.6	67
E	3.3	56
F	3.9	76
G	3.6	67
H	3.6	67
I	3.3	59
J	3.3	59
K	4.4	86
L	3.5	63
M	3.5	63
N	3.3	56
O	3.0	49

Note: Table IV lists the total reading achievement scores by grade equivalent (G.E.) and the corresponding percentile (%ILE) for students in control group B. These students were grouped for reading instruction. Students A-E were in the top group, students F-J were in the middle group, and students K-O were in the bottom group.

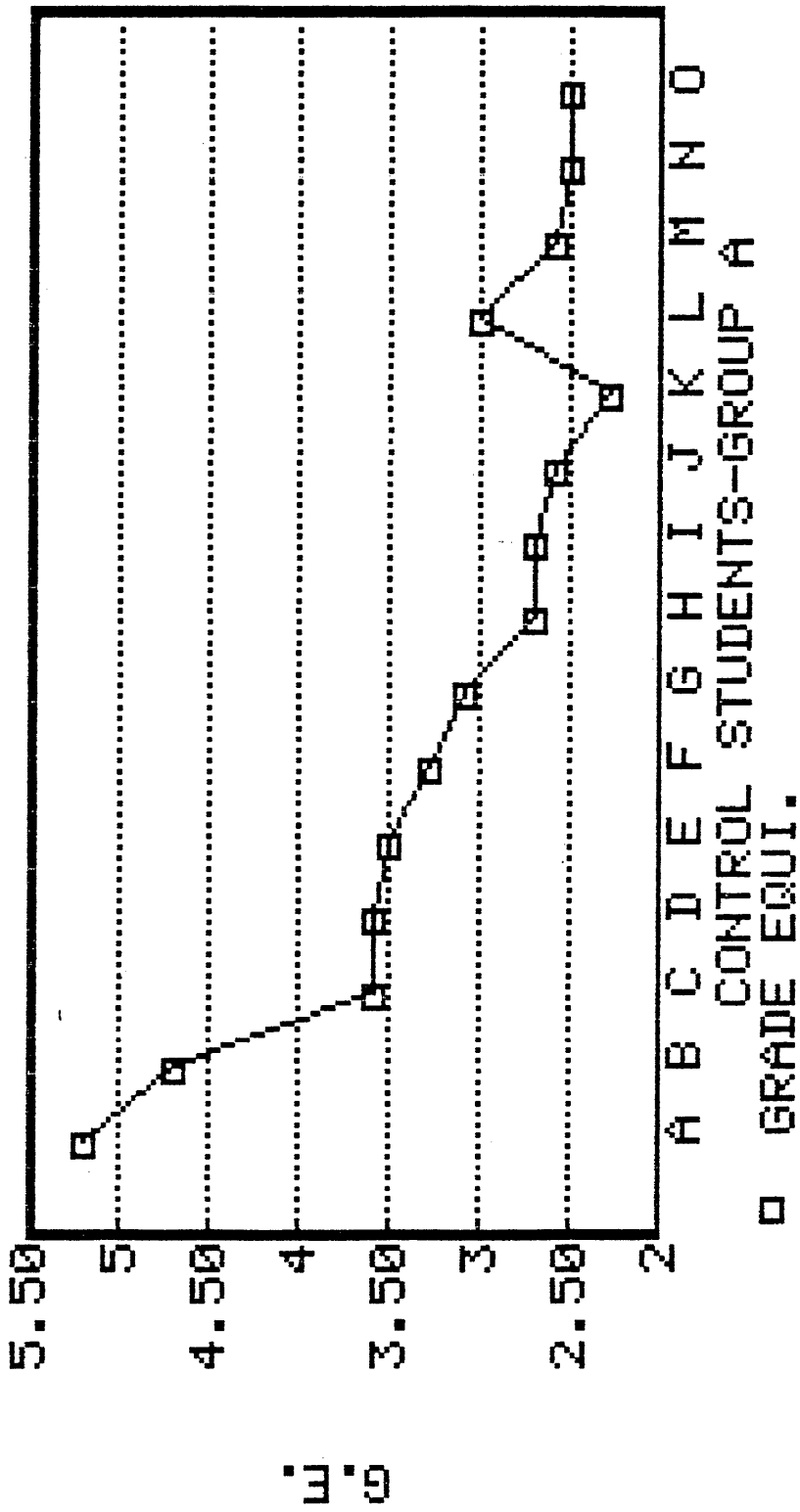
GRAPH I

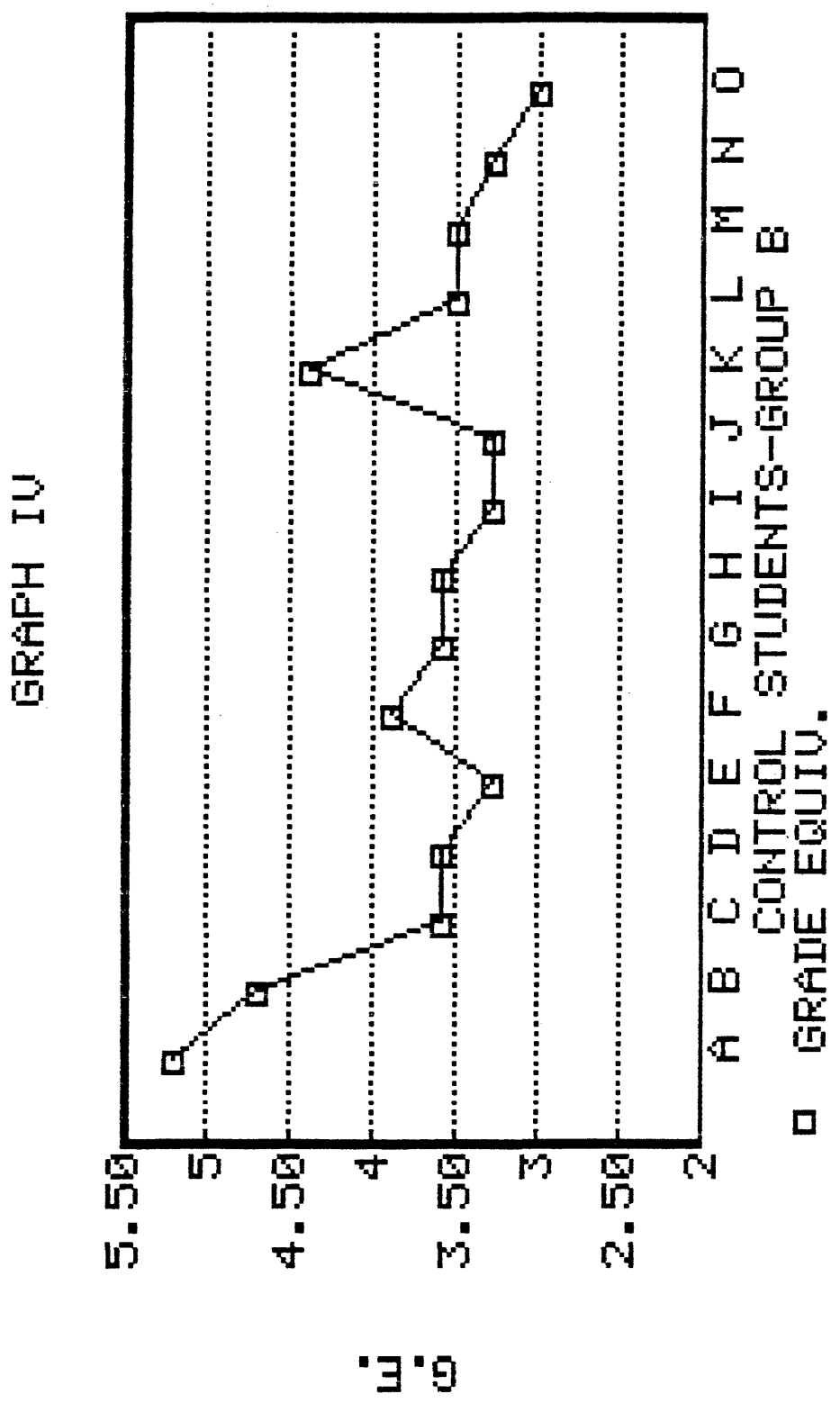

G.E.
5.50
5
4.50
4
3.50
3
2.50
2
A B C D E F G H I J K L M N O
CLARKSON STUDENTS-GROUP A
GRADE EQUI.

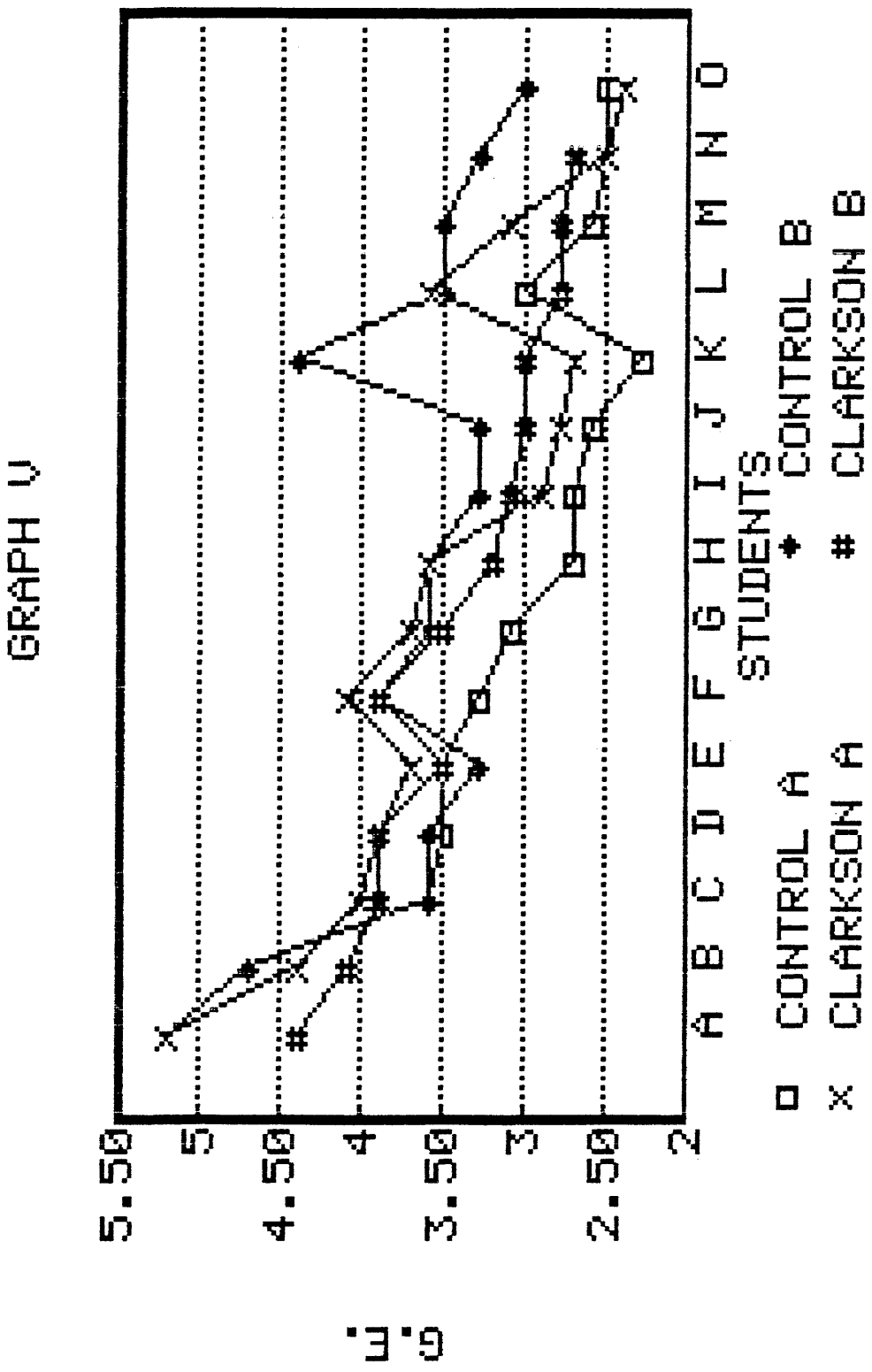
GRAPH II

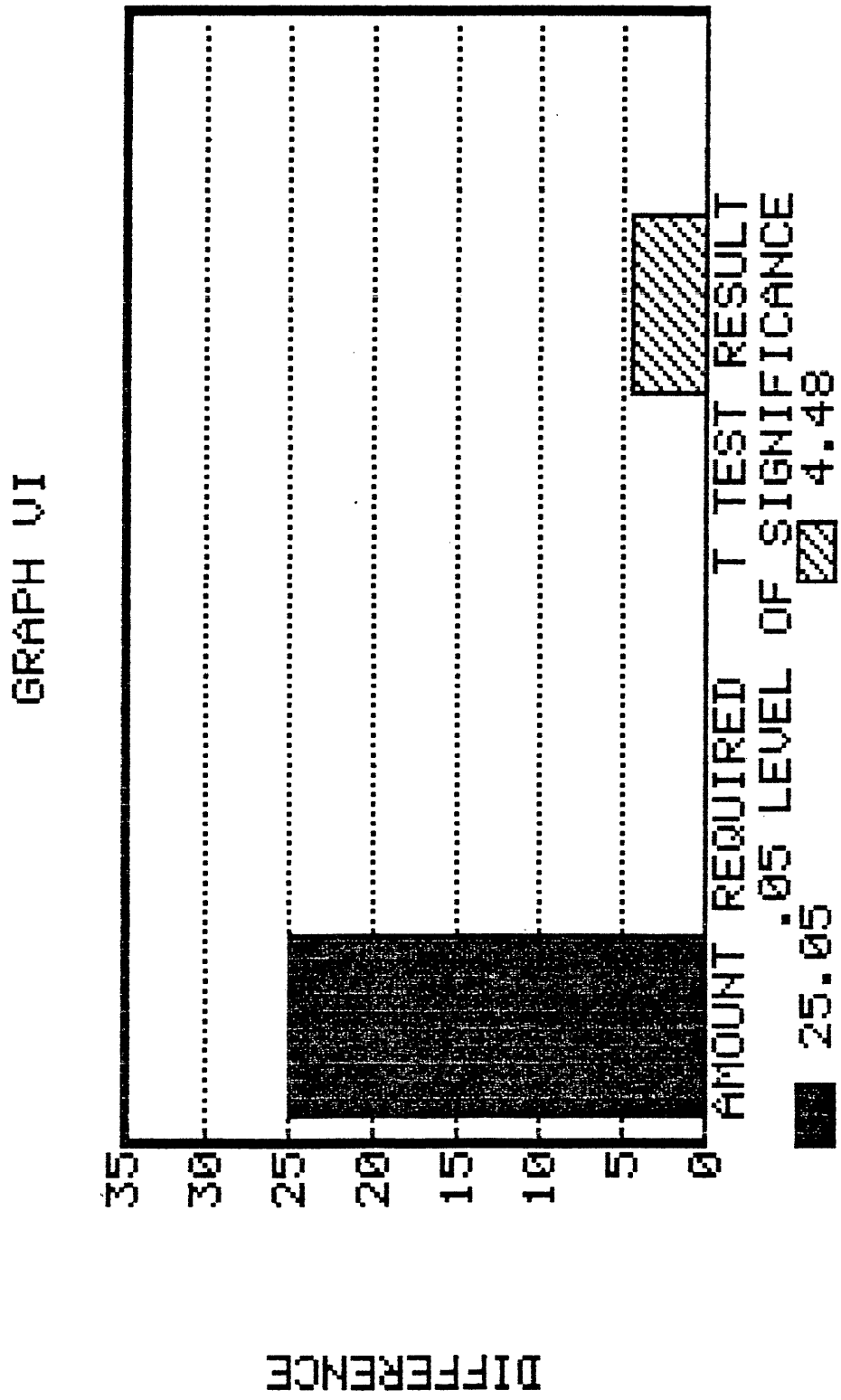

G.E.
5.50
5
4.50
4
3.50
3
2.50
2
A B C D E F G H I J K L M N
CLARKSON STUDENTS-GROUP B
□ GRADE EQUIV.

GRAPH III


G.E.
5.50
5
4.50
4
3.50
3
2.50
2
A B C D E F G H I J K L M N O
CONTROL STUDENTS-GROUP A
□ GRADE EQUI.


GRAPH IV
G.E.
5.50
5
4.50
4
3.50
3
2.50
2
A B C D E F G H I J K L M N O
CONTROL STUDENTS—GROUP B
GRADE EQUIV.


GRAPH U
G.E.
5.50
5
4.50
4
3.50
3
2.50
2
A B C D E F G H I J K L M N O
STUDENTS
□ CONTROL A
* CONTROL B
X CLARKSON A
CLARKSON B


GRAPH VI
DIFFERENCE
35
30
25
20
15
10
5
0
AMOUNT REQUIRED T TEST RESULT
.05 LEVEL OF SIGNIFICANCE
25.05
4.48

80 questions which required students to answer "yes" or "no" to each question. The number of appropriate responses by each student as determined by the instrument manual became that student's raw score. These raw scores were listed with a percentile score for national comparison. Tables V, VI, VII, and VIII display the self concept raw score and national percentile for each child listed in the same format which was used with the listing of achievement scores.

Within the 80 question measure, a cluster of 17 questions were identified as responsible for the child's self concept with respect to intellectual and school status. These results were displayed in Tables IX, X, XI, and XII.

Graph VII shows the 't' score value of 32.75 in self concept for the two comparable groups. This value was above the required 25.05 at .05 level of significance.

Graph VIII shows the 't' score value of 22.413 which was slightly less than the required 25.05 at .05 level of significance. This result came from calculations of self concept with respect to intellectual and school status.

Graph IX shows the 't' test results for I.Q. scores of the students in this study. The 't' score value was 12.19, much below the required value of 26.5 at .05 significance.

TABLE V

SELF CONCEPT SCORES
FOR CLARKSON
GROUP A

STUDENT	RAW SCORE	%ILE
A	28	6
B	72	95
C	73	96
D	66	85
E	79	99+
F	45	29
G	44	27
H	77	99+
I	66	85
J	74	97
K	66	85
L	59	66
M	65	82
N	65	82
O	66	85

Note: Table V lists the self concept scores for students in Clarkson group A, by raw score and the corresponding national percentile. Students are listed in the same order as Table I.

TABLE VI

SELF CONCEPT SCORES
FOR CLARKSON
GROUP B

STUDENT	RAW SCORE	%ILE
A	73	96
B	71	94
C	56	57
D	74	97
E	80	99+
F	56	57
G	42	23
H	42	23
I	55	55
J	73	96
K	76	99
L	56	57
M	59	66
N	67	87

Note: Table VI lists the self concept scores for students in Clarkson group B, by raw score and the corresponding national percentile. Students are listed in the same order as Table II.

TABLE VII

SELF CONCEPT SCORES
FOR CONTROL
GROUP A

STUDENT	RAW SCORE	%ILE
A	56	57
B	73	96
C	53	49
D	41	21
E	55	55
F	31	9
G	70	93
H	52	46
I	41	21
J	38	17
K	56	57
L	47	33
M	64	79
N	65	82
O	67	87

Note: Table VII lists the self concept scores for students in control group A, by raw score and the corresponding national percentile. Students are listed in the same order as in Table III.

TABLE VIII

SELF CONCEPT SCORES
FOR CONTROL
GROUP B

STUDENT	RAW SCORE	%ILE
A	70	93
B	76	99
C	69	91
D	36	14
E	43	24
F	67	87
G	32	10
H	57	60
I	41	21
J	65	82
K	50	41
L	30	8
M	40	20
N	55	55
O	72	95

Note: Table VIII lists the self concept scores for students in control group B, by raw score and the corresponding national percentile. Students are listed in the same order as in Table IV.

TABLE IX

INTELLECTUAL AND SCHOOL STATUS SCORES
FOR CLARKSON GROUP A

STUDENT	RAW SCORE
A	8
B	15
C	17
D	15
E	17
F	11
G	11
H	17
I	16
J	17
K	16
L	15
M	14
N	14
O	15

Note: Table IX lists the students in Clarkson group A and the raw score for the 17 questions pertaining to the intellectual and school status cluster of The Piers-Harris Children's Self Concept Scale.

TABLE X

INTELLECTUAL AND SCHOOL STATUS SCORES
FOR CLARKSON GROUP B

STUDENT	RAW SCORE
A	17
B	13
C	11
D	14
E	17
F	9
G	9
H	7
I	10
J	17
K	16
L	14
M	15
N	14

Note: Table X lists the students in Clarkson group B and the raw score for the 17 questions pertaining to intellectual and school status cluster of The Piers-Harris Children's Self Concept Scale.

TABLE XI

INTELLECTUAL AND SCHOOL STATUS SCORES
FOR CONTROL GROUP A

STUDENT	RAW SCORE
A	12
B	16
C	13
D	10
E	15
F	8
G	17
H	10
I	7
J	6
K	15
L	9
M	14
N	12
O	15

Note: Table XI lists the students in control group A and the raw score for the 17 questions pertaining to intellectual and school status cluster of The Piers-Harris Children's Self Concept Scale.

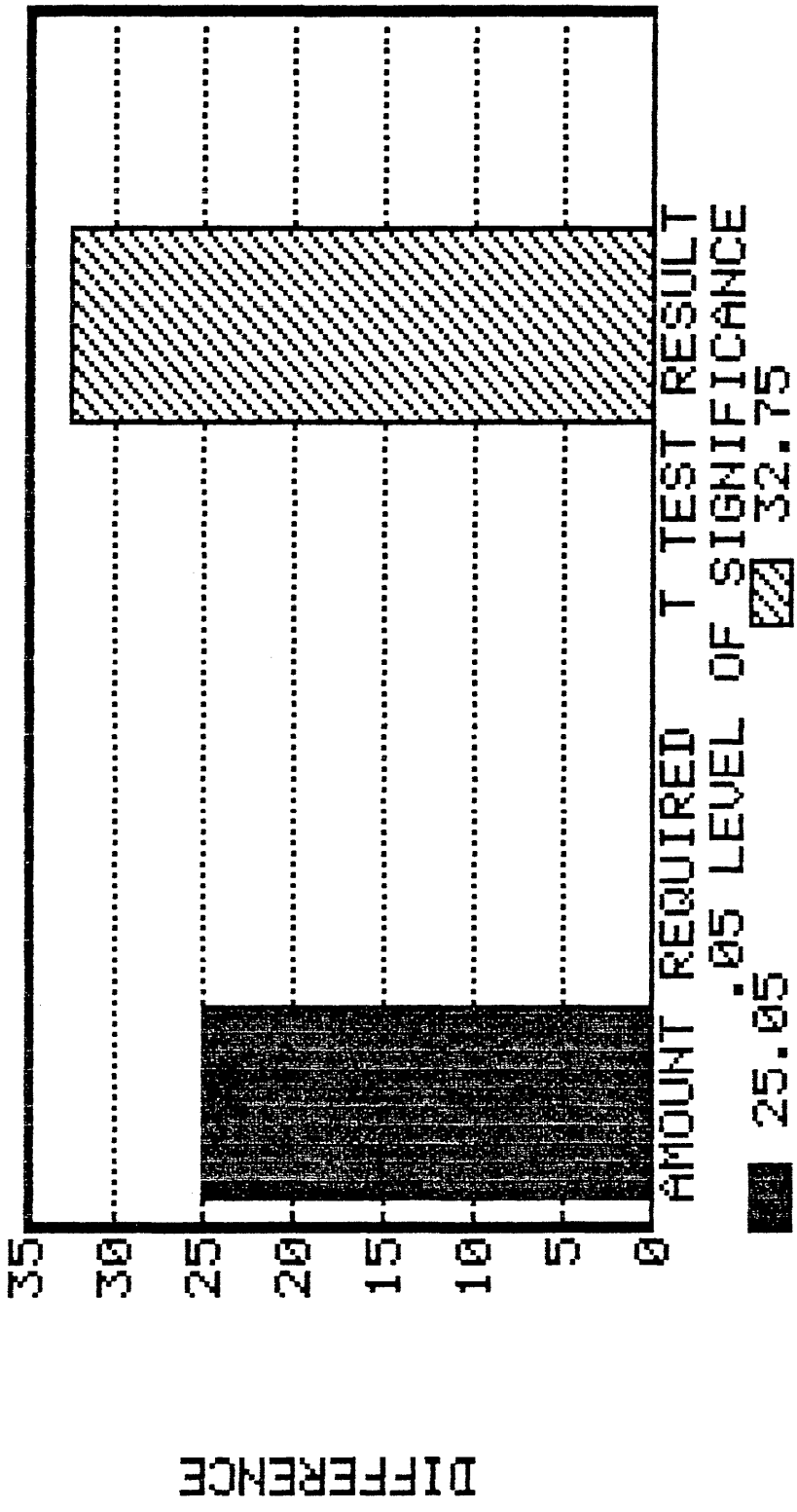
TABLE XII

INTELLECTUAL AND SCHOOL STATUS SCORES
FOR CONTROL GROUP B

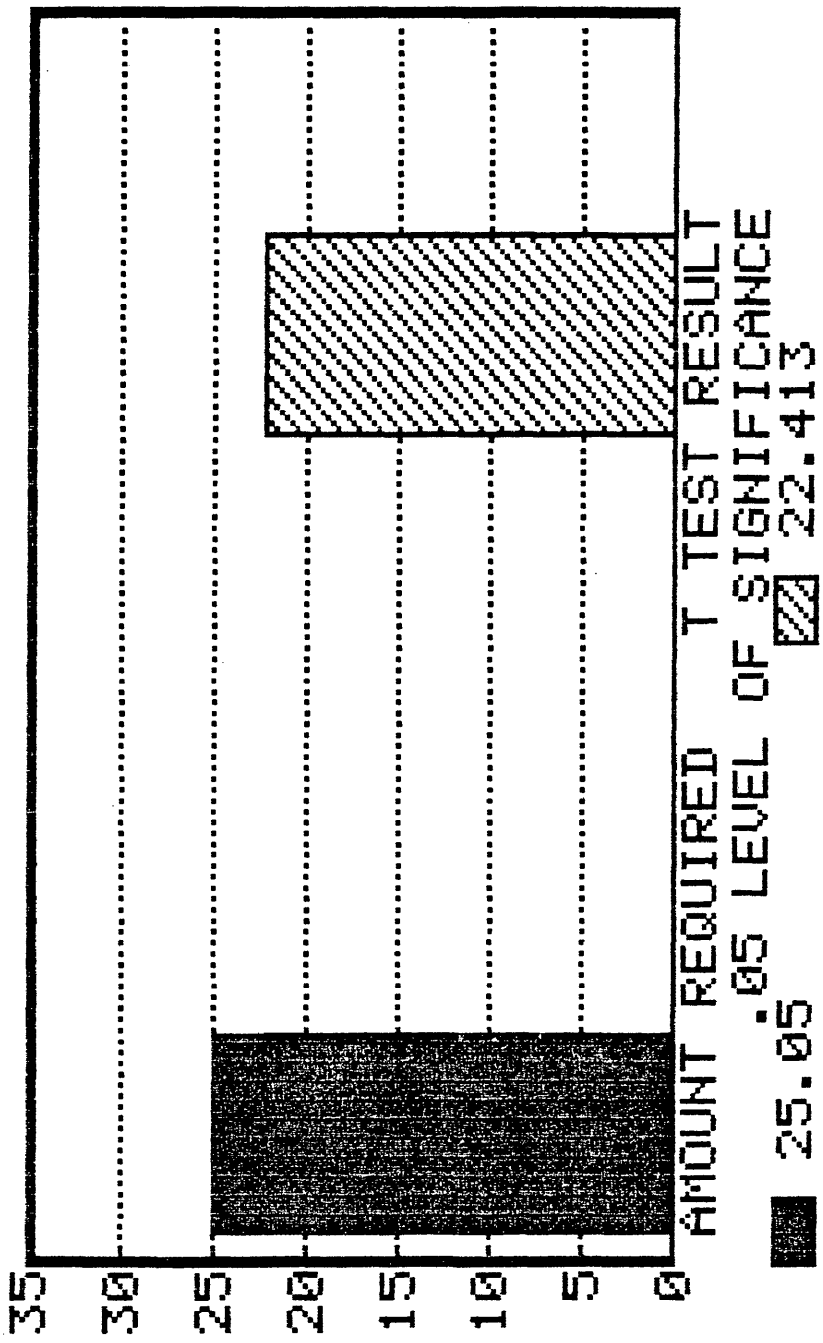
STUDENT	RAW SCORE
A	14
B	17
C	13
D	11
E	10
F	16
G	10
H	15
I	9
J	15
K	9
L	5
M	7
N	13
O	14

Note: Table XII lists the students in control group B and the raw score for the 17 questions pertaining to the intellectual and school status cluster of The Piers-Harris Children's Self Concept Scale.

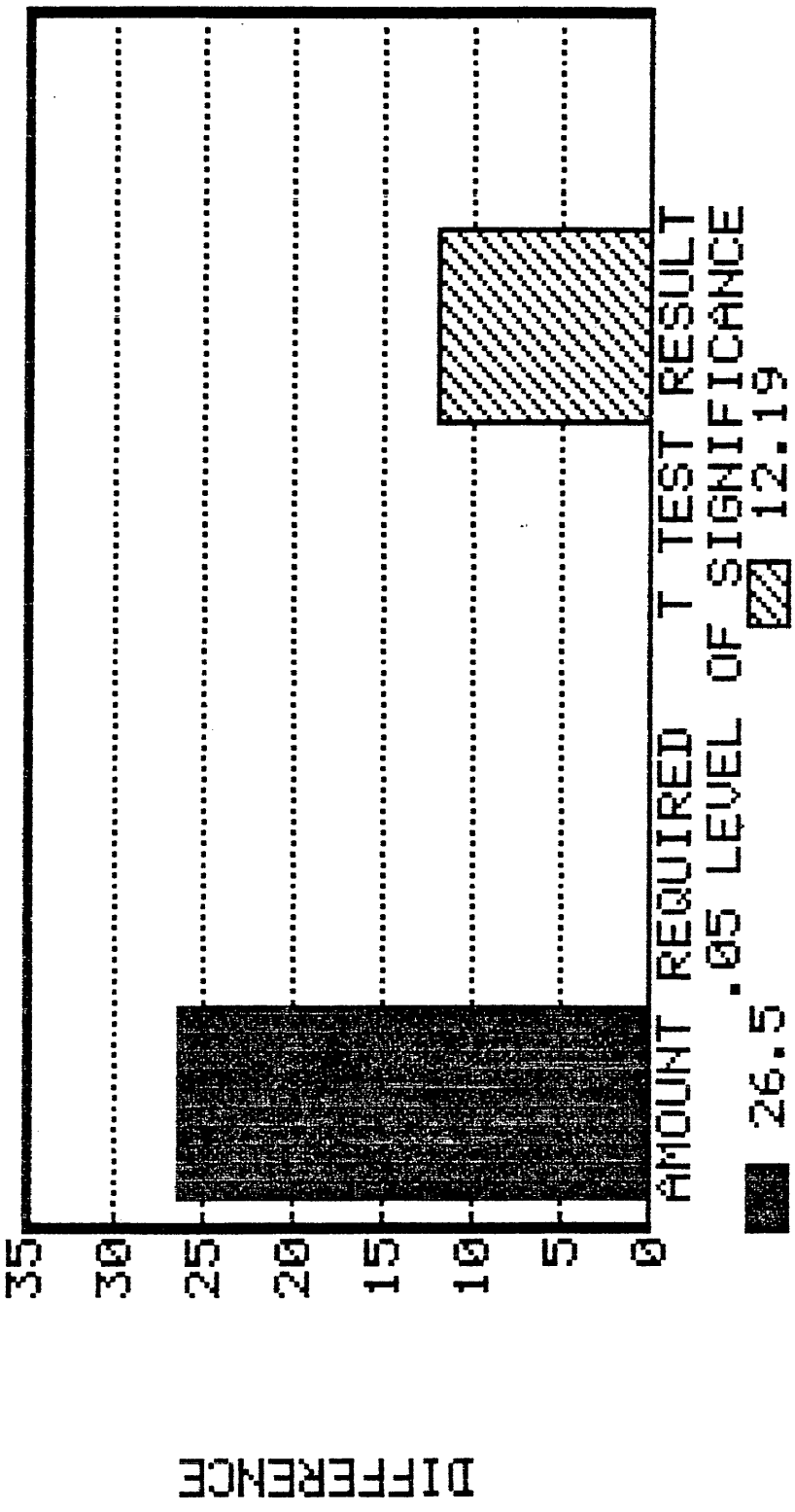
GRAPH VII


35
30
25
20
15
10
5
0
DIFFERENCE
AMOUNT REQUIRED T TEST RESULT
.05 LEVEL OF SIGNIFICANCE
25.05
32.75

GRAPH VIII


35
30
25
20
15
10
5
0
DIFFERENCE
AMOUNT REQUIRED T TEST RESULT
.05 LEVEL OF SIGNIFICANCE
22.413
25.05

GRAPH IX


35
30
25
20
15
10
5
0
DIFFERENCE
AMOUNT REQUIRED T TEST RESULT
.05 LEVEL OF SIGNIFICANCE
26.5
12.19

CHAPTER 5

SUMMARY, CONCLUSIONS, and RECOMMENDATIONS

The purpose of this study was to evaluate the effectiveness of mastery learning and whole group pacing for reading instruction in Clarkson Elementary School, Fremont, Nebraska. The hypotheses tested were: 1) that there was no significant difference in reading achievement when children were taught reading using whole group paced, mastery learning and homogeneous grouping; 2) that there was no significant difference in self concept for students taught using whole group paced, mastery learning and homogeneous grouping.

By analyzing the results of the information gained from the study of hypothesis number one, it was clear that no significant difference in reading achievement scores existed between the whole group paced, mastery learning students and the homogeneously grouped students. Tables I, II, III, and IV show the student's grade equivalent scores and national percentile scores from the California Achievement Test which was administered in September 1984. Graph VI shows the 't' score value was not significant. In comparing the number of students who scored above the national mean, 21 of 30 (70%) students in the homogeneous group were found to have a percentile score above 50. The Clarkson group totaled 19 of 29 (65.5%) students with percentile scores above 50. Therefore there was little question that null hypothesis number one was accepted.

The data that were collected concerning hypothesis number two indicated that the self concept for students who were taught reading using whole group paced, mastery learning was significantly higher than the self concept of students who were homogeneously grouped for reading instruction. Tables V, VI, VII, and VIII display self concept scores for the tested population. Analysis of the self concept found 16 of 30 (53.3%) students who were grouped homogeneously scoring above the national mean of 50 on the percentile scale. The mastery learning students who were not grouped numbered 24 of 29 (82.8%) students above the same mean of 50.

With these results, further analysis of self concept scores was made. The mean for each group was calculated and displayed on Tables VI, VI, VII, and VIII. The mean for Clarkson Students tested was 62.93, while the mean for the homogeneously grouped students was 53.73. The difference in raw score of 9.2 in favor of the mastery learning group was significant. This difference was further amplified by converting the mean raw scores for each group to the corresponding national percentile scores. The mean raw score of 54 was at the 52nd percentile for the homogeneously grouped students, while the mean raw score of 63 for the Clarkson School students was at the 77th percentile. Therefore the 9.2 difference in raw score represented a 25 point difference in percentile.

These data were further analyzed by use of a 't' test.

Results of this test were listed in Graph VII. The calculated 't' score value of 32.75 was found to be larger than the required 25.05 at the .05 level of significance. Therefore the null hypothesis number two was rejected.

Analysis of the data which pertained to the cluster of 17 questions related to intellectual and school status found the mean raw score for the homogeneously grouped students at 11.90, while the whole group paced students scored a mean raw score of 13.83, thus a difference of almost 2 points was found in the mean score comparison. A mean raw score of 12.85 was calculated for the entire testing population. The number of students who scored above the group mean numbered 15 of 30 (50%) for the homogeneous group and 21 of 29 (72%) for the mastery learning group.

Graph VIII displayed the results of a 't' test completed on the 17 cluster questions for intellectual and school status. The calculated 't' score value of 22.413 was found to be just less than the required 25.05 at the .05 level of significance.

CONCLUSIONS

Based upon the information gathered through achievement tests and the self concept scale, the following conclusions were made regarding the two stated hypotheses:

1. Whereas the null hypothesis number one was accepted, achievement test scores appeared to be very good for both groups of students.
2. The null hypothesis number two was rejected as

evidence existed that showed students who were taught with whole group paced, mastery learning had higher self concepts than homogeneously grouped students.

3. It was further concluded that students at the high and low extremes of the academic scale did not experience boredom or frustration. Quite the opposite was found to be the case. The quality of instruction was high enough to provide success for students at the low end. Their self concepts were so much higher that they remained positive toward reading and school. Students at the high extreme were not bored because teachers felt their needs were met through the enrichment component of mastery learning.

RECOMMENDATIONS

Based upon the data within this study, the following recommendations were made:

1. A similar study should be made next year to determine if any changes in results take place.
2. A similar study of self concepts for students at all elementary grade levels should be conducted to determine when and how self concept comparisons change.
3. A more in-depth study needs to be conducted to determine if other factors besides instructional practices, i.e. grouping and grading, led to the significant difference in self concept.
4. A future study should be conducted to see what affect

this format has on students as they progress through secondary school.

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