

A COMPARISON OF READING ACHIEVEMENT BETWEEN STUDENTS ENROLLED
IN GRADED AND NONGRADED READING PROGRAMS

by

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ABSTRACT

This study was designed to determine if there was a difference in student reading achievement between elementary school pupils enrolled in nongraded and elementary school pupils enrolled in graded reading programs in School District #61, Victoria. The sample of four hundred students (N = 200 boys, 200 girls) was randomly selected from ten elementary schools in the Victoria School District. Five of the ten schools involved in the study used a nongraded form of organization for the purpose of teaching reading. The other five schools used a graded form of organization for teaching reading. The criterion variable, reading achievement, was defined to be a student's raw score on the Metropolitan Reading Test. Analysis of variance was used to test for differences in reading achievement between graded and non-graded groups of students. The eight hypotheses tested in this study indicate that there is no difference in reading achievement between students of the graded and students of the nongraded reading programs.

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INTRODUCTION

Statement of the Problem

A popular criticism of education mentioned by Hutchison (1969) arises from the fact that educational innovations are sometimes put into full scale operation in the schools before systematic evaluations of the effectiveness of the new processes have been made. Robinson (1968) supports this criticism when he says, "Organizational innovation is a meaningless kind of activity unless it results in certain fundamental changes in what learners do when they learn and what teachers do when they teach (p. 57)." Further criticism of Canadian education arises from the fact that much of the evidence relied upon for the adoption of innovations in Canada originates from research carried out in the United States.

For generations schools have been subdivided into grades through which pupils passed in lock-step fashion as they progressed through the school system. This graded system is often criticized (Beggs and Buffie, 1967; Tewksbury, 1967) for ignoring individual differences among learners by demanding that all pupils cover the same material at approximately the same rate of speed. In recent years, however, many educators (Cronbach, 1954; Goodlad and Anderson, 1959; Hillson, 1965; Rollins, 1968) have exhibited interest in nongrading as a form of school organization. Cronbach (1954) suggests that the nongraded method of school organization is better suited to the needs of individual students than is the graded system of organization. He wrote the following: "Rigid age-grading is not a good policy for a school.

While each developmental task becomes important at a certain period in the person's life, it is not correct to assume that people go through the developmental sequence at an exactly uniform rate or in a fixed order (p. 244)." Harris (1961) concurs with Cronbach when he reports that the range in reading ability in grade five commonly varies from second to eighth grade. He estimated that only the middle third of pupils function at grade level.

A need for research in this area of education was expressed by Hillson, Jones, Moore and Van Devender (1964) when they made the following statement with regard to nongraded schools: "A procedure which promises so many benefits, with few if any drawbacks, is worth careful evaluation. To date, such evaluation as exists is largely subjective, anecdotal, and at the level of demonstration rather than experimentation (p. 548)."

Forty-two school districts in British Columbia claim to have some nongraded classrooms (British Columbia Department of Education, 1969). No British Columbia school district has, however, completely committed itself to the nongraded form of school organization. In other words, British Columbia school districts are presently in the process of trying to decide if nongraded methods of school organization truly are superior to graded methods of school organization.

Research is needed to aid educators in their attempts to arrive at decisions concerning graded and nongraded programs.

Purpose of this Study

The purpose of this study is to make a comparative analysis of

the reading achievement of elementary school pupils enrolled in non-graded and graded reading programs in British Columbia school district #61 (Victoria).

This study seeks to determine whether the difference in achievement in reading as measured by the Metropolitan Reading Test, between pupils of nongraded and pupils of graded organization is significant at the .05 level.

This study will be limited to a comparison between pupils randomly selected from five Victoria School District elementary schools operating "graded reading programs" and five Victoria School District elementary schools operating "nongraded reading programs". Definitions of terms used in this study and a statement of the limitation of this study can be found on pages 14 and 25 respectively.

PART II

REVIEW OF THE LITERATURE

Introduction

Many of the educators who write about nongraded schools (Glogan and Fessel, 1967; Goodlad and Anderson, 1959; Smith, 1968; Tewksbury, 1967) are concerned with the theoretical advantages of a nongraded system of school organization rather than with concrete, objective evidence of the accomplishments of such a pattern of school organization. Goodlad and Anderson (1959) and Hillson (1961) have been extremely enthusiastic in their descriptions of how nongraded school organization will overcome the "lock-step" approach to instruction. They claim that educators who overcome "lock-step" organization will be much more able to provide for individual differences among learners. In similar fashion, Tewksbury (1967) devotes a good deal of his book to explaining how the nongraded system will break the "lock-step" tradition of the graded school. The "lock-step" approach says Chamberlin (1969) is based on the following false assumptions:

1. Students learn at the same rate.
2. The same curriculum content is appropriate for all students.
3. A pupil-teacher ratio of thirty to one is the appropriate size for all lessons.
4. Class periods of equal length are appropriate for all learning activities.

The implication made by many writers (Beggs and Buffie, 1967; Hillson, 1965; Smith, 1968) is that educators who use the graded system of school organization have accepted the false assumptions mentioned by

Chamberlin (1969).

Austin (1957) researched elementary school nongraded practices and identified four objectives of this form of school organization.

They were as follows:

1. to provide for individual differences of learners.
2. to provide for continuous uninterrupted growth of pupils.
3. to release young children from strain and tension.
4. to eliminate failures and needless repetition.

It is interesting to note that very little, if any, mention is made by some of these writers of one of the most fundamental objectives of any pattern of school organization, namely, pupil achievement.

This study will concern itself with the effect of nongraded reading program organization on the reading achievement of pupils.

Research Conducted before 1960

Schools have not always been organized on the basis of year-levels or grades. It is generally held that the Quincy Grammar School which opened in 1848 in the United States established a model of graded organization for schools to follow for more than a century (Goodlad, 1955). Within twenty years of the opening of Quincy Grammar School the graded method of organization had spread rapidly and had become so well accepted that anyone who attempted to change back to a nongraded form of organization was considered to be an innovator. This is an extremely ironic situation, because before 1848, virtually all schools were nongraded.

The relative merits of graded and nongraded school organization

were already being considered in the 1860's. In 1868 the St. Louis Plan attempted to reduce the rigidity of graded organization by regrouping students every six weeks (Otto, 1932). Search (1894) reported on the Pueblo Plan which was one of the first attempts to allow students to progress at their own rates. A similar, but more elaborate scheme, the Winnetka plan, required each pupil to work at his own rate on an independent basis. Washburn and Rath (1927) reported a research study which compared academic achievement of students enrolled in the Winnetka Plan and students enrolled in conventional graded schools. Results of the study showed superior performance by students in the Winnetka Plan in two thirds of the comparisons made.

Goodlad (1958) summarizes the findings of his own survey and one conducted by Austin (1957) on nongraded schools. He reports that the following factors concerning nongraded schools emerged:

1. reduced tension in students.
2. increased teacher awareness of student individuality.
3. increased parental understanding of the school.

Kennedy (1957) in a survey of teachers of nongraded schools, reported "freedom from fear of encroaching on material reserved for the next grade (p. 121)," as one of the definite advantages of a nongraded system. These surveys conducted by Goodlad, Austin and Kennedy are subjective appraisals of the nongraded school and as such cannot be considered as research evidence of the effectiveness of the nongraded system.

A Milwaukee experiment compared students of four nongraded schools with students of four graded schools. Results in reading and

personality adjustment, showed a slight superiority of the nongraded school. (Milwaukee Public Schools, 1952). A study of the Appleton Public Schools (Goodlad, 1958) compared ten classes of grade four students with three intermediate nongraded groups. The median overall achievement grade-placement scores were 4.57 for the graded groups, in contrast to 4.83 for the three nongraded groups.

Anderson and Goodlad (1962) conducted a survey to determine the status of controlled research with regard to the effects of nongraded school organization. Their survey suggested that proper research in the area of the effectiveness of nongraded school organization was almost completely nonexistent as of 1960. They reported that respondents to the survey couched their replies in such language as:

1. teachers report better achievement.
2. parents and teachers are enthusiastic and do not want to return to grades.
3. children are happier.
4. discipline problems have virtually disappeared.
5. there are few nonreaders.

Responsible educators would have little confidence in the validity of such evidence. Further suspicion is cast upon the quality of research by the fact that not a single respondent to Goodlad and Anderson's survey (1960) reported achievement results favoring the graded system. Furthermore, one study concerned with parental attitudes, reported not one unfavorable parent reaction to the nongraded structure, even though the study involved five hundred interviews.

Research Conducted after 1959

In the last ten years there have been some conscientious attempts to assess nongraded school organization under controlled experimental conditions.

Skapski (1960) conducted an experiment in a school in which the reading program was the only portion of the curriculum which was conducted on a nongraded basis. She found that when she compared reading, arithmetic and spelling achievement to external norms, the reading achievement of the students was significantly superior (p .01) to their arithmetic and spelling achievement. A separate phase of the same experiment produced results which showed that pupils in the nongraded reading program were significantly superior (p .01) on a reading achievement test to pupils of a matched group who were enrolled in a graded reading program.

Ingram (1960) reports similar evidence. In his study, Stanford Achievement Test, Elementary Battery scores of sixty-eight pupils of a nongraded program in Flint, Michigan were compared with corresponding scores of pupils enrolled in Flint's conventional graded schools. Pupils in the nongraded system excelled the pupils in the graded schools in paragraph meaning, word meaning, spelling, and language; differences in these four mean scores favored the pupils in the nongraded program at the one percent level.

Kierstead (1963) compared reading achievement of groups of graded and nongraded pupils in grade three to eight in Vermont. He reported that when the graded and nongraded groups were equated by intelligence scores, there were no significant differences between the gains

made in vocabulary skills and reading comprehension. When the two groups were equated by the composite scores of the Iowa Tests of Basic Skills, he still found no significant differences between the gains made in vocabulary and reading comprehension skills.

Hart (1962) matched a group of nongraded students with a group of graded students on the basis of sex, age, intelligence, and socio-economic status. His results showed a significant superiority (p .02) in arithmetic achievement for the nongraded pupils.

Unfortunately, in the writer's opinion, the three studies by Skapski, Ingram and Hart all have failed to control for variations in individual teacher effectiveness.

Buffie (1962) compared academic achievement and mental health of 117 matched pairs of students from four graded and four nongraded schools. Scores on the Iowa Tests of Basic Skills produced no significant differences between the graded and nongraded pupils in reading, general vocabulary, development, and arithmetic. The differences in general language scores, academic composite scores, and work study scores were significant at the one percent level of confidence and favored the nongraded group. Scores on the Test Anxiety Scale for Children and the General Anxiety Scale for Children revealed no significant differences in the tests anxiety and the general anxiety scores of the two groups, although the results of both tests favored the nongraded pupils.

Hillson, Jones, Moore and Van Devender (1964) designed an experimental study in which both students and teachers were assigned at random to the experimental condition, (nongraded organization) and

the control conditions (graded organization). After three semesters students were tested on the Lee Clark Reading Test and the "Paragraph Meaning and Word Meaning Tests of the Primary Battery" of the Stanford Achievement Test. Results indicated that the experimental group outperformed the control group on all three tests (p .06).

Carbonne (1961) used a variety of statistical methods in an attempt to control unwanted variables. He divided his experiment into three parts. The control group pupils were selected at random from graded school systems. The experimental group pupils were randomly selected from nongraded school systems. Analysis of covariance was used to hold intelligence constant in all comparisons. The results of part one of the study showed that the graded pupils scored significantly higher (p .01) than nongraded pupils in all six areas of achievement measured. The dependent variables measured in part one were vocabulary, reading comprehension, language, work study skills, arithmetic and total achievement. Part two of the study tested for differences in mental health as measured by the California Test Bureau Mental Health Analysis Test between comparable groups of pupils who had attended graded and nongraded primary schools. The results of this phase of the experiment indicated that in four out of five mental health factors -- freedom from emotional instability, freedom from feelings of inadequacy, freedom from nervous manifestations, and personal relationships -- there were no significant differences. In the fifth factor, social participation, graded pupils scored significantly higher (p .01) than did nongraded pupils. Part three of the study involved the use of a semantic differential scale to study attitudes towards teachers of graded and nongraded students. The results of this scale most definitely showed superior

adjustment of the nongraded pupils to their school environment. The evidence of the first two phases of Carbonne's study is in contrast to previously reported studies in this review of the literature.

Moore (1963) supported Carbonne's findings when he investigated the differences in reading and arithmetic achievement between children in an ungraded primary organization and children in a conventional graded school organization. He found that the mean score of pupils enrolled in graded classes exceeded the mean score of pupils enrolled in ungraded classes in nearly all measures of achievement.

Halliwell (1963) compared the California Achievement Tests results of one hundred and forty-six pupils of a graded program with one hundred and forty-six pupils of a nongraded program. After one year the nongraded pupils obtained significantly higher ($p .01$) achievement scores in word knowledge and reading comprehension than the graded pupils. At the end of the second year of the experiment, nongraded pupils attained higher achievement scores than the second grade pupils in every subject area, except word discrimination. However, only in the area of arithmetic was the difference significant, it favored the nongraded group at the $.05$ level of significance. At the end of the third year, the nongraded pupils outperformed the third grade pupils in every subject area tested. Three of these differences were statistically significant, arithmetic computation and spelling were significant at the $.01$ level of confidence, and arithmetic problem solving was significant at the $.05$ level.

Provus (1960) compared arithmetic achievement at the fourth, fifth and sixth grade levels of pupils enrolled in graded and pupils enrolled in nongraded systems of organization. The experimental

group consisted of eleven classes grouped according to arithmetic ability. The control group consisted of eight graded classes. Provus reported that only the above average students benefited from the non-graded system of organization. The average and slow learners did not show improved achievement.

Much (1966) compared the effect of classroom organization on academic achievement in graded and nongraded classes. She reported that "The nongraded classes did not achieve better than the graded classes in academic areas of the curriculum (p. 111)."

Ross (1967) compared graded and nongraded pupil achievement of six, seven, and eight year old pupils on the Metropolitan Achievement Tests Battery. She reported no significant differences in achievement on most tests of the battery. The two exceptions were superiority of ungraded eight-year old boys in spelling achievement (p .05) and superiority of ungraded seven and eight-year old boys and girls on arithmetic achievement (p .05).

Morris (1968) conducted a five year study in which he evaluated graded and nongraded pupil achievement on the Iowa (I.T.B.S.) tests and the Stanford Tests of Achievement. His results showed that non-graded boys excelled graded boys (p .001) and nongraded girls excelled graded girls (p .001).

Summary

Many writers (Glogan and Fessel, 1967; Goodlad and Anderson, 1959; Smith, 1958; Tewksbury, 1967) have described how a nongraded system of school organization should enable educators to overcome the

disadvantages of a lock-step system of instruction. These writers imply that student achievement will improve as graded instruction is abolished.

Various studies conducted before 1960 (Goodlad, 1958; Milwaukee Public Schools, 1952; Washburn and Ruths, 1927) present findings which tend to favor the nongraded system of organization. Unfortunately much suspicion has been cast upon the quality of the research carried out in these studies (Anderson and Goodlad, 1962).

Research conducted since 1959 has produced conflicting evidence. Little agreement has been found with regard to the superiority of either the graded or nongraded system of school organization (Carbonne, 1961; Hart, 1962; Ingram, 1960; moore, 1963; Skapski, 1960). It seems to the writer that one reason for the confusion which exists with regard to the relative merits of graded and nongraded school organization is the fact that some researchers (Hart, 1962; Ingram, 1960; Much, 1966; Skapski, 1960) have not successfully controlled for differences in individual teacher effectiveness.

DESIGN OF THIS STUDY

The study was limited to an investigation of whether or not there was a difference in student reading achievement between elementary school pupils enrolled in nongraded and elementary school pupils enrolled in graded reading programs in School District #61, Victoria.

Definition of Terms

For the purpose of this study the following definitions were used:

1. Nongraded reading program

A "nongraded reading program" is a system of organization whereby students are grouped for the purpose of reading instruction strictly according to their reading ability. Students are not labelled as fourth grade, fifth grade or sixth grade readers. Student grouping within this system is flexible. During the school year, if it is to a student's advantage, he may be transferred to a higher or lower reading level. In this system of organization, all students of the school read at the same hour. They report to the room where the level of reading they require is being taught. Consequently, a fourth year student who is a good reader, may find himself grouped with sixth or seventh year pupils for the purpose of reading instruction. A poor sixth year reader, on the other hand, may find himself in a class composed primarily of fourth year students. Both interclass and intraclass grouping is used in schools operating a "nongraded reading program." A student's original placement in this system is determined by diagnostic testing and teacher opinion.

In this study five schools of the Victoria School District were found to be operating "nongraded reading programs" as defined above. The "nongraded" groups of students were selected at random from these five schools.

2. Graded reading program

A "graded reading program" refers to a conventional system of organization whereby students are grouped and labelled as fourth grade, fifth grade, sixth grade or seventh grade pupils. There is no inter-class or intergrade grouping of pupils for the purpose of reading instruction in this system of organization. A system of intraclass grouping only is used in graded reading programs.

In this study five schools of the Victoria School District were found to be operating graded reading programs as defined above. The "graded" groups of students were selected at random from these five schools.

3. Reading achievement

Two dependent variables represent reading achievement at the grade five level in this study:

i Word Knowledge

"Word Knowledge" is the raw score obtained on the Metropolitan Intermediate Reading Test, Word Knowledge, Form Am.

ii Reading Comprehension

"Reading Comprehension" is the raw score obtained on the Metropolitan Intermediate Reading Test, Reading, Form Am.

Two dependent variables represent reading achievement at the grade seven level in this study:

i Word Knowledge

"Word Knowledge" is the raw score obtained on the Metropolitan Advanced Reading Test, Word Knowledge, Form Am.

ii Reading Comprehension

"Reading Comprehension" is the raw score obtained on the Metropolitan Advanced Reading Test, Reading, Form Am.

4. Student school ability

"Student school ability" is the score obtained when the pupil's raw scores on the Verbal and Nonverbal tests of the Lorge Thorndike Intelligence Test are averaged.

Statement of Hypotheses

The following hypotheses were tested in this study:

1. There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Reading, Form Am between fifth year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.
2. There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Word Knowledge, Form Am between fifth year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.
3. There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Reading, Form Am between fifth year elementary school boys who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.
4. There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Word Knowledge, Form Am between fifth year elementary school boys who are enrolled in non-graded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.
5. There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Reading, Form Am between seventh year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

6. There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Word Knowledge, Form Am between seventh year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.
7. There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Reading, Form Am between seventh year elementary school boys who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.
8. There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Word Knowledge, Form Am between seventh year elementary school boys who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The comparison groups described in the above hypotheses are shown in Table 1.

TABLE 1

COMPARISON GROUPS IN THIS STUDY

GRADED GROUPS

	Fifth Year Girls	Fifth Year Boys	Seventh Year Girls	Seventh Year Boys
NONGRADED GROUPS	Fifth Year Girls	Ho 1 Reading Ho 2 Word Knowledge		
	Fifth Year Boys	Ho 3 Reading Ho 4 Word Knowledge		
	Seventh Year Girls		Ho 5 Reading Ho 6 Word Knowledge	
	Seventh Year Boys			Ho 7 Reading Ho 8 Word Knowledge

Experimental Design

In order to test the hypotheses the "static group comparison" pre-experimental design described by Campbell and Stanley (1963) was used. In this design a group that has experienced an experimental condition is compared with a group which has not experienced the experimental condition. In this study the experimental condition is membership in one of the five elementary schools of school district #61 defined in this study to have operated a nongraded reading program during the school year 1969 - 70.

Campbell and Stanley (1963) describe two areas of possible weakness in the above design. First they point out the danger that biases may have caused differential selection of respondents for the comparison groups. Secondly they warn against the danger of differential loss of respondents from the comparison groups once the experimental condition has been applied.

In this study an attempt was made to guard against differential selection of comparison group members by using random sampling techniques. With regard to differential mortality from the comparison groups, it seems quite unlikely that the experimental condition, namely membership in a nongraded reading program at the elementary level, would cause a differential loss of students from the control and experimental groups.

Method

In the spring of 1970 a letter was sent to the central office staff of the Victoria School District requesting the names of those elementary schools in the district which were operating nongraded reading programs at the intermediate level. The central office staff

listed fourteen schools in the district which they thought might be operating nongraded reading programs. The principals of these fourteen schools were contacted in an attempt to confirm the status of their respective schools with regard to the use of nongraded organization for the purpose of reading instruction. Of the fourteen schools, five were found to be operating nongraded reading programs as defined in this study.

Five graded reading programs were selected at random from the remaining elementary schools in the district. Principals of these schools were then contacted and it was established that they were operating graded reading programs as defined in this study.

The director for research and testing for the Victoria School District was asked to classify the socio-economic status of the neighborhoods of the six graded schools and of the six nongraded schools. In his opinion, for each graded school population there was a corresponding school population of comparable socio-economic status among the nongraded group schools.

Subjects

All students involved in this experiment were enrolled in graded homerooms. Students of five of the schools attended nongraded classes for the purpose of reading instruction. In October 1970, a table of random numbers was used to select ten grade five girls, ten grade five boys, ten grade seven girls and ten grade seven boys from each of the ten schools involved in this study. Students who registered with a school part way through the 1969-70 school year (i.e., transients) were not included in the population of this study.

Table 2 gives a breakdown of the number of pupils included in this study.

TABLE 2
NUMBER OF PUPILS INCLUDED IN THIS STUDY

	Fifth Year Students			Seventh Year Students		
	Boys	Girls	Total	Boys	Girls	Total
Nongraded Reading Program	50	50	100	50	50	100
Graded Reading Program	50	50	100	50	50	100
Totals	100	100	200	100	100	200

Statistical Procedure

On October 5, 1970 all grade five students involved in this study were administered the Verbal and Nonverbal tests of the Lorge-Thorndike Intelligence Test, Level C, and the Reading and Word Knowledge subtests of the Metropolitan Advanced Reading Test, Form Am.
Intermediate

On the same day, all grade seven students involved in the study were administered the Verbal and Nonverbal tests of the Lorge-Thorndike Intelligence Test, Level E, and the Reading and Word Knowledge subtests of the Metropolitan Advanced Reading Test, Form Am.

The testing program was supervised and directed by the Research and Testing Division of the Victoria School District. The results of these tests which were conducted on a group basis by the regular classroom teachers, were provided for use in this study.

The raw scores on the Verbal and Nonverbal tests of the Lorge Thorndike Intelligence Test were averaged. Each test contributes approximately 50% to the combined total variances as based upon the raw score standard deviations of the Verbal and Nonverbal tests listed on page 9 and 10 of the Technical Manual for the Lorge Thorndike Intelligence Tests (1963). Analysis of variance performed on the combined scores of the Verbal and Nonverbal intelligence tests showed no significant differences between comparison groups of this study.

Analysis of variance was used to test for differences between mean scores of the graded and nongraded groups of students for the two dependent variables, Word Knowledge and Reading.

Instrumentation

The Metropolitan Reading Test, Intermediate and Advanced batteries was used to measure reading achievement of grade five and grade seven students respectively. Both the Intermediate and the Advanced batteries are composed of the two subtests, "Word Knowledge" and "Reading."

Robinson (1965) in a review of the Metropolitan Reading Test reported it to be an excellent survey test of reading achievement.

Durost (1962) reports that the "Word Knowledge" subtest "is not a cross-sectional sample of all the words a student may know; it is a representative sample of the words used in widely circulated reading series, which were shown to discriminate effectively between students of good and poor vocabulary (p. 33)."

The "Reading subtest is reported by Durost (1962) to measure reading comprehension. It is composed of a series of reading selections, each followed by several diversified questions aimed at measuring ability to get the central thought of the selection, to derive

the meaning of a word from context, to recall significant details or to infer some new fact from the information given (p. 3)."

Durost (1962) (p. 46) made a report concerning the reliability of the subtests of the Intermediate and Advanced Reading Tests. Both the Intermediate and Advanced Metropolitan Reading Tests are reliable instruments as displayed by the data in Table 3.

TABLE 3
SPLIT-HALF RELIABILITY COEFFICIENTS FOR THE
METROPOLITAN READING TEST BASED ON FOUR INDEPENDENT ESTIMATES

Test	Reliability Coefficient		Standard Error of Measurement	
	Range	Median	Range	Median
<u>Intermediate</u>				
Word Knowledge	.88 - .95	.94	3.0 - 3.4	3.1
Reading	.89 - .92	.90	2.5 - 2.8	2.6
<u>Advanced</u>				
Word Knowledge	.91 - .94	.92	2.5 - 3.2	3.1
Reading	.88 - .92	.90	2.2 - 2.7	2.6

The Lorge-Thorndike Intelligence Tests Level C and Level E were used to obtain a combined index of verbal and nonverbal intelligence for pupils of grade five and grade seven respectively.

Freeman (1959) and Milholland (1959) writing in the Fifth Mental Measurements Yearbook rate the Lorge-Thorndike Intelligence Test as one of the best group intelligence tests available. Lorge-Thorndike and Hagen (1963) report an odd-even reliability of .945 for the Level C Verbal battery, .943 for the Level C Nonverbal battery, .921 for the Level E Verbal battery and .931 for the Level E Nonverbal battery.

Correlation of the Level C Verbal and Nonverbal battery scores is .711.

Correlation of the Level E Verbal and Nonverbal battery scores is .746.

Limitations and Controls of this Investigation

1. The use of nongraded systems of organization for the purpose of teaching reading at the intermediate level in Victoria School District elementary schools is a recent development and the very fact that it is new, may contribute to an increase in achievement.
2. Pupils and consequently teachers have been selected at random for this experiment; however it was not possible to assign pupils and teachers to the experimental or control treatments. As a result this study is an "ex post facto" experiment. Caution must be taken in making any statements involving causal relationships in such studies. However, with regard to the assignment of pupils and teachers, it would be very difficult to discover any particular pattern whereby students and teachers are assigned to the schools of the Victoria School District involved in this study. Furthermore, it is difficult to conceive how such a pattern, if one does exist, would relate to the experimental condition of this study, namely nongraded organization for the purpose of reading instruction.
3. There was no attempt to evaluate the teaching materials or techniques of the two programs, although the organization of the programs were described. Nor was there any attempt to evaluate the effectiveness of the teachers who are involved in this study. It is believed that because this study is limited to a single school district and because a large number of teachers (N 60)

are involved in this study, the unwanted effect of various teaching materials and techniques will be controlled.

4. All schools involved in this study operate a primary levels system for reading during grades one, two and three. It is possible that a few students involved in this study may have attended schools in other school districts prior to September, 1969. There appears to be no reason why this variable should affect the experimental group differently than it will affect the control group, however.
5. Campbell and Stanley (1963) suggest that the design used in this experiment has no control over differential loss of students from the nongraded and graded groups. It seems quite unlikely, however, that the experimental condition, nongraded organization for the purpose of reading instruction, would cause a differential loss of students between the comparison groups.

CHAPTER IV

RESULTS OF THIS STUDY

Findings

This study seeks to determine whether the difference in achievement in reading as measured by the Metropolitan Reading Test, between elementary school pupils enrolled in graded reading programs and elementary school pupils enrolled in nongraded reading programs is significant at the .05 level.

Analysis of variance was used to test for differences in reading achievement between the comparison groups of this study. The comparison groups are shown in Table 1 on page 19.

The results of the analysis of variance are shown in Tables 4 to 11.

TABLE 4

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Fifth Year
Girls (Reading)

Analysis of Data with Reference to Hypothesis #1.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	98.01	98.01	1.42	.24
Within Groups	98	6,749.78	68.88		
Total	99	6,847.79			

TABLE 5

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Fifth Year
Girls (Word Knowledge)

Analysis of Data with Reference to Hypothesis #2.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	92.19	92.19	.70	.41
Within Groups	98	12,957.50	132.22		
Total	99	13,049.69			

TABLE 6

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Fifth Year
Boys (Reading)

Analysis of Data with Reference to Hypothesis #3.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	39.69	39.69	.70	.40
Within Groups	98	5,536.91	56.50		
Total	99	5,576.60			

TABLE 7

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Fifth Year
Boys (Word Knowledge)

Analysis of Data with Reference to Hypothesis #4.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	12.25	12.25	.13	.72
Within Groups	98	9,528.31	97.23		
Total	99	9,540.56			

TABLE 8

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Seventh Year
Girls (Reading)

Analysis of Data with Reference to Hypothesis #5.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	9.56	9.56	.15	.70
Within Groups	88	5,785.38	65.74		
Total	89	5,794.94			

TABLE 9

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Seventh Year
Girls (Word Knowledge)

Analysis of Data with Reference to Hypothesis #6.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	7.13	7.13	.06	.80
Within Groups	88	9,795.81	111.31		
Total	89	9,802.94			

TABLE 10

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Seventh Year
Boys (Reading)

Analysis of Data with Reference to Hypothesis #7.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	16.44	16.44	.23	.63
Within Groups	88	6,251.25	71.04		
Total	89	6,267.69			

TABLE 11

Analysis of Variance on the Metropolitan Reading Test Scores
Between Graded and Nongraded Seventh Year
Boys (Word Knowledge)

Analysis of Data with Reference to Hypothesis #8.

Source of Variation	df	Sum of Squares	Mean Square	F	Prob.
Between Groups	1	42.94	42.94	.43	.51
Within Groups	88	8,703.56	98.90		
Total	89	8,746.50			

Findings Related to the Hypotheses

The findings for each hypothesis were as follows:

Hypothesis 1:

There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Reading, Form Am between fifth year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs, in British Columbia School District #61 Victoria.

The graded students mean score was 20.90

The nongraded students mean score was 22.88

The difference is not significant ($p = .24$) Hypothesis number one was accepted.

Hypothesis 2:

There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Word Knowledge, Form Am between fifth year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The graded students mean score was 29.98

The nongraded students mean score was 31.90

The difference is not significant ($p = .41$) Hypothesis number two was accepted.

Hypothesis 3:

There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Reading, Form Am between fifth year elementary school boys who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The graded students mean score was 24.34

The nongraded students mean score was 23.08

The difference is not significant ($p = .40$) Hypothesis number three was accepted.

Hypothesis 4:

There is no difference in the mean scores on the Metropolitan Intermediate Reading Test, Word Knowledge, Form Am between fifth year elementary school boys who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The graded students mean score was 33.22

The nongraded students mean score was 33.92

The difference is not significant ($p = .72$) Hypothesis number four was accepted.

Hypothesis 5:

There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Reading, Form Am between seventh year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The graded students mean score was 29.47

The nongraded students mean score was 28.82

The difference is not significant ($p = .70$) Hypothesis number five was accepted.

Hypothesis 6:

There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Word Knowledge, Form Am between seventh year elementary school girls who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The graded students mean score was 34.57

The nongraded students mean score was 35.14

The difference is not significant ($p = .80$) Hypothesis number six was accepted.

Hypothesis 7:

There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Reading, Form Am between seventh year elementary school boys who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The graded students mean score was 29.40

The nongraded students mean score was 30.26

The difference is not significant ($p = .63$) Hypothesis number seven was accepted.

Hypothesis 8:

There is no difference in the mean scores on the Metropolitan Advanced Reading Test, Word Knowledge, Form Am between seventh year elementary school boys who are enrolled in nongraded and those who are enrolled in graded reading programs in British Columbia School District #61, Victoria.

The graded students mean score was 34.75

The nongraded students mean score was 36.13

The difference is not significant ($p = .51$) Hypothesis number eight was accepted.

CHAPTER V

DISCUSSION AND SUMMARY

Many writers (Glogan and Fessel, 1967; Goodlad and Anderson, 1959; Smith, 1968; Tewksbury, 1967) have described how a nongraded system of school organization should enable educators to provide better learning opportunities for students.

Considering the definitions of terms used in this study (page 14) and considering the limitations of the study (page 25) the following general conclusion can be made. This study does not support the view that organization of reading classes on a nongraded basis will improve reading achievement. All 8 hypotheses tested in this study indicate that there is no difference in reading achievement between students of graded and students of nongraded reading programs in School District #61, Victoria.

Supporters of nongraded school organization (Austin, 1959; Goodlad, 1958; Hillson, 1965) suggest that the greatest advantage of a nongraded system of organization over a graded system of organization is that the nongraded organization makes it much easier for educators to provide for individual differences among students. Perhaps this is a false assumption. It is possible that increased demands placed upon teachers by nongraded organization with regard to the monitoring of student progress, and the recording of student progress, make it impossible for teachers to devote any more time to providing for individual differences than is possible in a graded system of organization.

Robinson (1968) wrote, "Organizational innovation is a meaningless kind of activity unless it results in certain fundamental changes in what learners do when they learn and what teachers do when they teach, (p 57)." Robinson's point of view is supported by this study. The process of grouping students strictly according to their reading ability, not labelling them as fourth grade, fifth grade, sixth grade, or seventh grade readers and the process transferring these students during the year to higher or lower achievement groups does not appear to either improve or hinder their reading achievement. Consequently in terms of reading achievement as defined in this study, it appears that an educator can freely choose either a graded or a nongraded method of organization for teaching reading without fear that the type of organization he chooses will be detrimental to the reading achievement of his students.

It appears that it is not realistic to expect improved academic achievement merely on the basis of a change in organizational structure. The attainment of high pupil achievement is not necessarily a direct result of nongrading. The hypotheses tested in this study indicate that standards in reading can be attained equally well in elementary schools organized under the graded or nongraded system. It is probable that if any new form of school organization is to produce gains in achievement, it will have to be accompanied by adaptations in the instructional practices employed by teachers. Changes in organizational structure alone are not enough.

Implications for Further Research

It is possible that nongraded organization might affect students of high and low school ability differently. A study is needed in which "student ability", "student sex", and "student membership in graded or nongraded organization" are the independent variables. Multiple classification analysis of variance might indicate interaction between the above three variables.

If grading or nongrading the organization of a reading program does not influence reading achievement then presumably an educator must choose the type of organization that he wishes to follow on the basis of factors other than achievement. In this regard, research into the effects of nongraded and graded organization on the affective domain would provide useful information to educators.

Studies designed to compare demands placed upon educational resources by the two types of organization are needed. It is possible that one of the two methods might be less demanding in terms of the requirements that it places upon the resources (time, knowledge, and teaching ability) of the teachers.

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APPENDIX A

RAW SCORE DATA FOR PUPILS
OF GRADED READING PROGRAMS

APPENDIX A

Raw Score Data for Pupils of Graded Reading Programs

Fifth Year Girls

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
1	39	19	14
2	26	18	11
3	49	36	26
4	52	31	23
5	53	49	38
6	34	10	13
7	35	15	22
8	67	34	18
9	20	13	16
10	53	28	12
11	68	49	32
12	47	22	16
13	49	30	23
14	47	17	08
15	56	29	22
16	46	47	19
17	35	28	15
18	39	21	18
19	37	09	11
20	46	34	27
21	49	32	20
22	45	30	24
23	43	19	14
24	44	18	21
25	47	31	18

APPENDIX A (Continued)

Raw Score Data for Pupils of Graded Reading Programs

Fifth Year Girls

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
26	43	24	19
27	52	37	26
28	36	17	12
29	21	27	17
30	50	26	18
31	66	42	21
32	79	51	40
33	68	51	37
34	62	46	31
35	61	50	28
36	60	46	22
37	56	37	28
38	49	24	11
39	30	29	15
40	46	25	19
41	48	31	21
42	35	25	15
43	45	40	27
44	59	22	22
45	49	32	24
46	70	50	33
47	42	14	08
48	51	37	23
49	35	15	16
50	51	35	31

APPENDIX A (Continued)

Raw Score Data for Pupils of Graded Reading Programs

Fifth Year Boys

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
1	66	53	37
2	61	38	28
3	33	28	14
4	53	28	15
5	49	39	21
6	57	45	33
7	69	46	36
8	65	45	36
9	58	40	34
10	63	45	29
11	68	48	32
12	46	19	22
13	54	34	21
14	51	34	20
15	53	33	28
16	49	45	31
17	41	36	20
18	45	29	20
19	40	09	10
20	65	46	20
21	58	33	25
22	47	30	28
23	44	16	16
24	42	46	30
25	46	22	19

APPENDIX A (Continued)

Raw Score Data for Pupils of Graded Reading Programs

Fifth Year Boys

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
26	35	24	14
27	64	36	24
28	60	33	27
29	18	18	13
30	43	23	23
31	54	35	20
32	21	28	16
33	56	33	22
34	39	31	21
35	54	26	24
36	39	28	20
37	60	22	25
38	65	44	32
39	40	23	27
40	54	28	21
41	51	35	25
42	64	46	35
43	65	34	26
44	41	16	18
45	72	36	28
46	28	27	23
47	48	31	26
48	65	43	28
49	61	41	29
50	58	33	25

APPENDIX A (Continued)

Raw Score Data for Pupils of Graded Reading Programs

Seventh Year Girls

	Lorge-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
1	44	18	17
2	41	31	31
3	42	22	27
4	50	38	28
5	52	36	29
6	42	27	25
7	53	37	33
8	33	18	14
9	73	53	40
10	58	34	35
11	27	12	17
12	45	29	29
13	49	37	28
14	49	35	26
15	66	45	42
16	44	37	27
17	32	18	18
18	34	22	22
19	63	43	41
20	29	18	18
21	56	40	35
22	67	52	36
23	63	47	38
24	34	34	24
25	69	42	43

APPENDIX A (Continued)

Raw Score Data for Pupils of Graded Reading Programs

Seventh Year Girls

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
26	57	52	43
27	51	41	24
28	38	23	28
29	60	40	28
30	61	50	41
31	54	39	33
32	60	44	37
33	62	41	30
34	38	37	30
35	43	29	27
36	50	32	23
37	52	41	33
38	45	41	22
39	50	22	27
40	44	26	30

Seventh Year Boys

<u>S</u>			
1	52	32	31
2	53	39	27
3	52	45	29
4	45	31	19
5	50	31	28
6	44	19	21

APPENDIX A (Continued)

Raw Score Data for Pupils of Graded Reading Programs

Seventh Year Boys

	Lorge-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
7	52	40	31
8	69	52	39
9	60	34	30
10	59	38	34
11	59	35	34
12	58	41	28
13	44	28	21
14	44	15	17
15	47	38	28
16	33	19	24
17	32	19	14
18	58	42	32
19	32	25	19
20	38	19	16
21	53	40	36
22	48	35	35
23	26	25	21
24	52	20	28
25	64	47	36
26	34	32	21
27	54	41	33
28	65	45	42
29	66	54	39

APPENDIX A (Continued)

Raw Score Data for Pupils of Graded Reading Programs

Seventh Year Boys

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
30	70	48	43
31	53	44	37
32	51	41	37
33	39	32	33
34	57	45	36
35	49	21	24
36	48	25	26
37	50	41	33
38	58	49	38
39	41	28	25
40	51	35	31

APPENDIX B

RAW SCORE DATA FOR PUPILS
OF NONGRADED READING PROGRAMS

APPENDIX B (Continued)

Raw Score Data for Pupils of Nongraded Reading Programs

Fifth Year Girls

	Lorge-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
26	49	23	14
27	64	30	24
28	20	11	08
29	23	21	18
30	29	16	06
31	45	23	13
32	41	12	13
33	48	18	20
34	61	45	29
35	62	48	34
36	3k	21	09
37	56	47	27
38	46	31	13
39	60	33	31
40	35	26	13
41	52	44	24
42	68	41	30
43	57	34	23
44	31	16	16
45	55	27	24
46	70	40	31
47	54	31	34
48	52	29	21
49	46	21	16
50	63	43	36

APPENDIX B

Raw Score Data for Pupils of Nongraded Reading Programs

Fifth Year Girls

	Lorge-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
1	71	53	38
2	58	32	25
3	50	44	30
4	26	09	15
5	66	45	36
6	45	28	16
7	44	39	14
8	57	29	32
9	34	20	14
10	45	23	10
11	58	29	19
12	35	18	14
13	54	28	20
14	56	38	29
15	48	35	18
16	52	29	20
17	54	38	30
18	60	45	31
19	56	36	23
20	58	39	25
21	60	49	38
22	46	35	21
23	70	48	37
24	61	26	23
25	55	49	39

APPENDIX B (Continued)

Raw Score Data for Pupils of Nongraded Reading Programs

Fifth Year Boys

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
1	50	35	22
2	48	27	18
3	68	38	32
4	53	32	29
5	58	39	20
6	62	38	19
7	37	21	24
8	60	36	28
9	63	48	37
10	31	11	13
11	73	47	39
12	71	49	37
13	73	46	23
14	65	51	38
15	60	30	22
16	60	31	23
17	56	28	16
18	31	32	21
19	64	25	19
20	61	40	29
21	45	28	24
22	30	20	15
23	58	28	23
24	56	19	16
25	31	22	14

APPENDIX B (Continued)

Raw Score Data for Pupils of Nongraded Reading Programs

Fifth Year Boys

	Lorge-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
26	49	22	13
27	48	23	13
28	40	37	23
29	61	38	27
30	38	35	16
31	60	40	34
32	49	35	23
33	53	34	28
34	09	05	03
35	21	43	15
36	58	42	25
37	38	18	10
38	45	34	12
39	55	43	29
40	51	35	20
41	57	41	30
42	47	38	37
43	59	34	26
44	63	33	16
45	62	40	32
46	53	33	16
47	61	42	26
48	38	37	18
49	59	53	41
50	51	40	20

APPENDIX B (Continued)

Raw Score Data for Pupils of Nongraded Reading Programs

Seventh Year Girls

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
1	45	31	27
2	50	43	21
3	45	29	21
4	41	27	18
5	31	29	28
6	69	54	42
7	34	36	26
8	62	42	37
9	29	14	09
10	48	26	19
11	42	24	27
12	58	41	35
13	43	34	29
14	42	25	22
15	49	32	31
16	55	53	36
17	50	48	35
18	73	50	42
19	54	27	23
20	32	17	11
21	63	50	40
22	44	30	30
23	53	42	35
24	47	34	28
25	47	32	23

APPENDIX B (Continued)

Raw Score Data for Pupils of Nongraded Reading Programs

Seventh Year Girls

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
26	40	25	19
27	61	44	40
28	57	50	43
29	51	35	34
30	55	49	27
31	45	32	25
32	59	45	31
33	54	21	21
34	50	23	27
35	55	37	35
36	57	32	28
37	55	30	34
38	64	47	42
39	58	35	34
40	63	48	38
41	60	26	23
42	27	18	10
43	47	34	31
44	42	27	25
45	35	18	15
46	47	49	34
47	52	46	37
48	49	47	36
49	56	36	28
50	48	33	29

APPENDIX B (Continued)

Raw Score Data for Pupils of Nongraded Reading Programs

Seventh Year Boys

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
1	44	22	23
2	42	31	31
3	50	42	36
4	51	29	28
5	59	44	32
6	46	42	33
7	49	27	26
8	36	46	38
9	49	28	29
10	47	25	22
11	50	28	17
12	41	20	13
13	40	31	25
14	56	48	43
15	30	17	18
16	58	42	38
17	48	31	37
18	50	40	34
19	52	44	35
20	53	40	36
21	37	27	15
22	71	54	42
23	46	25	19
24	42	20	25
25	41	29	21

APPENDIX B (Continued)

Raw Score Data for Pupils of Nongraded Reading Programs

Seventh Year Boys

	Large-Thorndike Intelligence Test	Metropolitan Reading Test Word Knowledge	Metropolitan Reading Test Reading
<u>S</u>			
26	55	49	38
27	49	39	29
28	39	33	25
29	47	41	12
30	61	48	42
31	53	52	41
32	58	46	41
33	32	23	14
34	30	33	14
35	54	44	42
36	55	39	33
37	60	37	36
38	62	43	38
39	47	31	25
40	60	42	40
41	50	40	31
42	58	44	42
43	33	22	25
44	39	27	18
45	40	28	29
46	55	43	35
47	61	50	41
48	54	40	35
49	49	31	31
50	50	50	40

APPENDIX C

Raw Score Range ($X_H - X_L$) For Each Comparison Group

	Word Knowledge $X_H - X_L$	Reading Comprehension $X_H - X_L$
<u>Graded Groups</u>		
Fifth Year Girls	51 - 9 = 42	40 - 8 = 32
Fifth Year Boys	53 - 9 = 44	37 - 10 = 27
Seventh Year Girls	53 - 12 = 41	43 - 14 = 29
Seventh Year Boys	54 - 15 = 39	43 - 14 = 29
 <u>Nongraded Groups</u>		
Fifth Year Girls	53 - 9 = 44	39 - 6 = 33
Fifth Year Boys	53 - 5 = 48	41 - 3 = 38
Seventh Year Girls	54 - 14 = 40	43 - 9 = 34
Seventh Year Boys	54 - 17 = 37	43 - 12 = 31

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