A STUDY OF SECONDARY SCHOOL READING ACHIEVEMENT IN A SELECTED AREA OF NEWFOUNDLAND

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A STUDY OF SECONDARY SCHOOL READING ACHIEVEMENT IN A SELECTED AREA OF NEWFOUNDLAND

A Thesis

Presented to

The Department of Curriculum and Instruction

Memorial University of Newfoundland

In Partial Fulfillment

of the Requirements for the Degree

Master of Education

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by

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April 1973

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

The undersigned certify that they have read and recommended for acceptance, a thesis entitled, A STUDY OF SECONDARY SCHOOL READING ACHIEVEMENT IN A SELECTED AREA OF NEWFOUNDLAND, submitted by Horace C. Davis in partial fulfillment of the requirements for the degree of Master of Education.

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ACKNOWLEDGEMENTS

The writer wishes to express his appreciation and thanks to the chairman of the thesis committee, Dr. O. K. Crocker, for his guidance in writing this report, and the other members of the thesis committee, Miss Betty Brett and Dr. H. W. Kitchen for their helpful comments and suggestions. The writer also acknowledges the kind assistance offered by Dr. R. K. Crocker in preparing the statistical programming for the study.

Appreciation is also expressed to the Roman Catholic School Board, teachers and students of the Burin Peninsula of Newfoundland for their cooperation in the collection of the data. A word of thanks is also expressed to my wife for her patience and assistance especially in interpreting the statistical findings of the study.

ABSTRACT

This study concentrated on various factors relating to the reading ability of selected secondary school students on the Burin Peninsula of Newfoundland. It sought to determine the relationship between reading ability and such variables as sex, intellectual ability and academic success. A comparison was also made between the performance of the students in this study and those comprising the norming population on a standardized reading test.

The population for the study involved the total secondary school enrolment under the auspices of the Roman Catholic School Board for the Burin Peninsula of Newfoundland. Information was collected on student reading ability and intellectual ability by means of a standardized reading test and a standardized I.Q. test. Records of student academic success were obtained by means of a questionnaire sent to the school board in the case of the Grade IX and X students. Similar information concerning the Grade XI students was obtained from the records of the Newfoundland Department of Education.

Statistically significant relationships were found to exist between reading ability and each of the independent variables. The male students in the study were found to be significantly more intelligent than the females. Females, on the other hand, were found to be better readers than the males to a degree to be statistically significant.

A significant positive correlation was shown to exist between intellectual ability and reading ability. The more intelligent students

were the better readers.

The over-all academic success experienced by the students was found to correlate significantly with reading ability. The better readers obtained higher average percentages in their final grade reports.

Reading ability was found to be a better predictor of academic success than were intelligence scores, since reading ability correlated more highly with academic success than did measures of intelligence.

Mean reading scores of the students in this study were found to be lower than those of the students comprising the norming population on the standardized reading test used. The American students of comparable grade, age and I.Q. comprising the norming population were better readers than those students involved in this study.

The mean I.Q. scores of the students involved in this study, while below those of the norm on the standardized I.Q. test used, did, nevertheless, compare somewhat favourably with the norms for that test. This was especially true for Grade XI males.

The findings of this study point to the need for including formal reading instruction at the secondary school level. Attention should be directed towards the importance of the I.Q. and sex of the student as they affect the reading process. The ability to read has a direct bearing on student success in school. Every effort should, therefore, be made to insure that students master the skills involved in the reading process.

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CHAPTER I

INTRODUCTION

This study forms one part of a three-part research project involving an examination of various aspects of reading in selected secondary schools in Newfoundland. The major purpose of this study is to examine the reading ability of selected secondary school students in the light of such factors as sex, intelligence and academic success.

Companion studies are being conducted in the same schools by two other graduate students. The schools involved, a total of six, comprise all of the secondary schools under the jurisdiction of the Roman Catholic School Board for the Burin Peninsula of Newfoundland. Each of the three studies deals with a specific aspect of secondary school reading. Together the three studies will present a comprehensive analysis of the reading ability and reading interests of students as well as teacher attitudes and practices regarding the teaching of reading. Under this arrangement the findings of the three studies will be of value in suggesting improvements in specific schools where a concern has been expressed regarding the level of reading proficiency.

This particular school board was selected for study following a request made to the Department of Curriculum and Instruction at Memorial University by one of the school principals working with that board.[1] In

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[1]For a copy of the letter see Appendix A.

his letter a request was made to have graduate students administer standardized tests in Marystown Regional High School with the Roman Catholic School Board for the Burin Peninsula of Newfoundland.

The selection of reading as the area of study was further influenced by the existence of documented evidence indicating that many secondary school students are not as proficient in reading as they could be and should be. Karlin, a recognized authority in the area of reading, expresses this belief: "A considerable proportion of the high school population does not read as well as it should or could."[2] This fact becomes significant when considering the importance reading is felt to have in a student's over-all success in school, and considering that so little emphasis has been placed on reading by secondary school teachers. The importance of reading is pointed out in a study undertaken by the Newfoundland Department of Education in which it was found that: "Eighty percent of the good readers were successful in the Grade IX examinations; not quite thirty percent of the poor readers passed."[3]

I. THE PROBLEM

The major purpose of this study was to investigate the reading ability of the secondary school population under the jurisdiction of the Roman Catholic School Board for the Burin Peninsula of Newfoundland. The study sought to determine whether the students concerned were reading as

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[2]Robert Karlin, "What does Research in Reading Reveal about Reading and the High School Student?" English Journal, Vol. 58 (March, 1969), p. 386.

[3]Newfoundland Department of Education Newsletter, St. John's, Vol. 16, No. 4 (October, 1964), p. 8.

well as could be expected of students of their grade and intelligence.

On the basis of the findings, the study has outlined a series of recommendations directed towards providing the necessary reading instruction to assure that students' academic success is not hampered by deficiencies in reading.

Related to this, and in an attempt to determine the importance of reading in the educative process, answers were sought to the following questions:

1. What is the relationship between reading achievement and academic success?
2. How do students' performance on the standardized tests used in the study compare with the norms of that test?
3. What is the relationship between sex and reading achievement?
4. What is the relationship between intelligence and reading achievement?

II. HYPOTHESES

The following is a list of the hypotheses tested in the study.

Hypothesis One

There is no significant relationship between intelligence and reading ability.

Hypothesis Two

There is no significant difference between the reading achievement of boys and girls as measured by vocabulary scores.

Hypothesis Three

There is no significant difference in total reading achievement between boys and girls.

Hypothesis Four

There is no significant relationship between reading achievement and academic success.

Hypothesis Five

There is no significant difference between the level at which students are actually reading and the level at which they are capable of reading.

III. SIGNIFICANCE OF THE STUDY

Minimal attention has been directed towards assessing the reading proficiency of students in the secondary schools of this province. An examination of the quality of secondary school reading ability is long overdue. This study attempted to assess the reading ability of selected secondary school students in Newfoundland and it is significant for the following reasons:

1. On the basis of the findings of this researcher, the study has endeavoured to suggest a basis for curriculum development in reading at the secondary school level in the area under study. The recommendations may be of value to other school districts experiencing similar problems.

2. Since minimal attention is being directed towards teaching reading at the secondary school level, it is hoped that this study will attract more attention towards placing a greater emphasis on improving the quality of reading of secondary school students in any grade or geographical area.

3. This study will supplement and be supplemented by two companion studies being conducted in the same area. Together the three studies will give a broad and detailed analysis of the reading ability and interests of students as well as teacher attitudes and practices relative to the teaching of reading at the secondary school level.

4. Considering the relatively high failure rate of secondary school students in Newfoundland, any improvements in the reading ability of students may conceivably lead to an improvement in the general success of students in the area under study. The reader is referred to Table I, page 38.

5. This researcher takes the position that investigations into reading have been plagued with erroneous assumptions regarding what constitutes a serious reading deficiency. A more detailed discussion of this question is presented later in the report.

IV. SCOPE AND LIMITATIONS

A number of limitations are inherent in this study:

1. It has been carried out in a single geographical area, that is on the Burin Peninsula in the province of Newfoundland.

2. All of the schools involved in the study were under the jurisdiction of one school board, the Roman Catholic School Board for the Burin Peninsula.

3. The study obtained the bulk of its information through the use of standardized tests, and the results obtained must be viewed in the light of the limitations of such instruments.

4. The information on intelligence and reading achievement has been obtained from the scores on one intelligence test and one reading test.

5. The reading test was a survey test in nature and gave a picture of general reading achievement only. No attempt was made to diagnose specific strengths and weaknesses, their causation or remediation.

V. OPERATIONAL DEFINITIONS

The following is a brief description of the variables to be used in the study. More detailed explanations are contained in subsequent chapters.

Secondary School

For the purposes of this study, secondary school refers to Grades IX, X and XI.

Standardized Reading Test

For the purposes of this study, standardized reading test refers to the Cooperative English Test, Reading Comprehension 1960, Form 2A.

Standardized Intelligence Test

For the purposes of this study, standardized intelligence test refers to The Lorge-Thorndike Intelligence Test, Forms 4AN and 5AN.

Intelligence, Intellectual Ability, Mental Ability

Intelligence, intellectual ability, mental ability refer to the score obtained by a student on The Lorge-Thorndike Intelligence Test, Forms 4AN and 5AN.

Reading Vocabulary

Reading vocabulary refers to the score obtained by a student on Part I (Vocabulary) on the Cooperative English Test, Reading Comprehension 1960, Form 2A.

Total Reading Achievement, Reading Ability

Total reading achievement, reading ability, refer to the total score obtained by a student on the Cooperative English Test, Reading Comprehension 1960, Form 2A, Part I plus Part II.

Reading Expectancy Level, Reading Potential

Reading expectancy level, reading potential, refer to the level at which a student could be expected to perform in reading given his grade and intellectual ability.

Academic Success

Academic success will be determined on the basis of the over-all average mark obtained by a student as recorded on his final grade report for the school year 1971-1972.

VI. ORGANIZATION OF THE STUDY

Chapter II of this study contains a review of the literature relevant to the problem. It is categorized according to the hypotheses being tested, that is the relationship between reading achievement and such factors as sex, intelligence and academic success. Chapter III discusses the procedures followed in conducting the study, the collection and processing of the data and a description of the statistical procedures used in analyzing the data. Chapter IV contains a descriptive analysis of the population and the underlying variables being studied, as well as a statistical analysis of the findings obtained from the hypotheses testing. Chapter V summarizes the study and discusses conclusions drawn from it. This chapter also considers the implications of the findings of the study for the improvement of reading and makes a number of recommendations to the local school authority.

CHAPTER II

RELATED LITERATURE

Learning to read is both a cumulative and complex lifelong process, the result of a variety of influences from a variety of interrelated sources. One of the most essential conditions for success in school and, indeed, in life is the possession of the ability to read. Hinsdale, writing seventy years ago, stated that whatever adds to the pupil's store of facts and ideas enhances his power to think.[1] He considered the ability to read to be among the most important of such influences. From birth to old age each period of life makes its contribution to the development of reading abilities, interests and attitudes. Reading ability, as a part of the individual's total development, increases with his growth in interests and general ability and with the challenge of increasingly complex and difficult reading tasks at each successive educational level. Although this is true, too few educators beyond the elementary school level realize that they have a tremendous responsibility for teaching skills in reading.

This chapter reports on the literature underlying the hypothesized relationship between each of the input variables and reading achievement. These variables are sex, intelligence and academic success. Included also is an examination of the research related to the aspects of reading with which this study is concerned.

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[1] A. E. Hinsdale, Teaching the Language Arts (New York: D. Appleton Company, 1896), p. 77.

I. READING ACHIEVEMENT

Much research in reading is currently being conducted in North America. Generally speaking, the findings illustrate the fact that students at the secondary school level are not proficient in reading. Karlin, in referring to the North American situation, notes that: "Perhaps as many as one-quarter (and in some areas even higher proportions of students) lack the reading skills they need to read the books with the comprehension expected of them."[2] Allen, utilizing an array of statistics gathered by the U. S. Office of Education, points to the fact that: "One of four students nationwide has significant reading deficiencies. . . . About one-half of the unemployed youth, ages 16-21, are functionally illiterate."[3] DeBoer quotes a study involving 50,000 eighth graders which showed that: "Only 14% had eighth grade reading ability, and 87% had less than fifth grade reading ability."[4] DeBoer gives a questionable conclusion to the effect that because the sample is so large it is reasonable to assume that these differences are typical of high school students generally. Henry expresses great concern regarding the apparent chaotic situation in reading especially considering that: "Scholastic progress and ability to secure the values inherent in what is read are influenced to a large extent

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[2]Karlin, op. cit., p. 387.

[3]Reading Crises, the Problems and Suggested Solutions (Education U.S.A. Special Report), National School Public Relations Association, 1970, p. 1.

[4]John DeBoer and Gertrude Whipple, "Reading Development in Other Curriculum Areas," Sixtieth Yearbook, Part I of the National Society for the Study of Education (Chicago: University of Chicago Press, 1961), p. 274.

by the competence of the reader.[5]

The American educator views the reading problem as one of the greatest challenges to be faced in the decade ahead. To illustrate the magnitude of the problem and the great concern the Americans have for it, one only need look at a recent statement issued by the U. S. Commissioner of Education:

> As U. S. Commissioner of Education, I am herewith proclaiming my belief that we should immediately set for ourselves the goal of assuming that by the end of the 1970's the right to read shall be a reality for all--that none shall be leaving our schools without the skill and the desire necessary to read to the full limits of his capacity. This is education's 'moon,' the target for the decade ahead.[6]

Parents today as never before are according high esteem to the importance of reading in that they are evaluating their children's success in school in relation to how well they can read. To an ever increasing degree, parents evaluate the success of a school by their child's progress in reading. It is noted that: "If their child does not learn to read, parents believe there is something wrong with the whole school system."[7] This report notes that educators are beginning to agree with this conclusion. Johnson, taking up the cause for Canadian parents, undertook a single-handed campaign to draw the attention of authorities to the poor quality of reading displayed by children in Manitoba schools. Her book is a forceful attack on an educational system she believes to be perpetuating illi-

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[5]N. B. Henry (ed.), Reading in the High School and College, Forty-seventh Yearbook (Chicago: University of Chicago Press, 1958), p. 15.

[6]Reading Crisis, op. cit., p. 3.

[7]Ibid., p. 4.

teracy. In reporting on an experience in which she had students read for her, she notes that the most outstanding characteristic of the children's reading was that it did not make sense and they did not seem to expect it to do so.[8]

Although research in the area of reading conducted in Newfoundland schools has been minimal, the findings appear similar to those quoted. Brett, in a survey of leisure reading in central high schools of Newfoundland, suggests that the situation is in need of improvement. This is evidenced by such statements as "Grade nine students cannot read well"[9] and "Students' reading skills leave much to be desired."[10] Her study found, moreover, that the amount of leisure reading done by students is restricted by a lack of reading skills, and that enjoyment of reading is impeded by reading difficulties experienced by the students. Brett contends that secondary school teachers appear to be unaware of the need to continue in the secondary grades with the reading instruction begun in the primary and elementary schools.

Further evidence supporting the existence of deficiencies in reading skills resulted from a study conducted by the Newfoundland Department of Education in 1964. The study involved 250 Grade IX students using the Metropolitan Achievement Test. One major finding of the study was that: "Four-sevenths of the pupils in Grade IX had reading ability

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[8]Mary Johnson, Programmed Illiteracy in our Schools (Winnipeg: Clarity Books, 1970), p. 11.

[9]Betty Brett, "A Survey of the Leisure Reading of Grade IX Students in Central High Schools of Newfoundland" (unpublished Master's thesis, University of Alberta, 1964), p. 15.

[10]Ibid., p. 17.

below the level expected for their grade."[11] Median achievement was found to be approximately one year below test norms.

In 1965, the Department of Education for the Province of Newfoundland, using the Dominion Achievement Tests, surveyed the reading of Grade VI students. Results revealed that, on the median, the Newfoundland pupils were eight months behind the norming population (rural Ontario) in vocabulary and nine months behind on comprehension.[12]

The report of the Newfoundland Royal Commission on Education and Youth revealed significant weaknesses especially with regard to reading comprehension and arithmetic problem solving as measured by the Iowa Test of Basic Skills.[13]

In a study undertaken by Kitchen, it was found that illiteracy in Newfoundland is twice the national average, and it is much more prevalent in the smaller settlements than in the larger ones.[14]

Pollard, in a study of Grade VI reading achievement in rural Newfoundland, found that on the basis of scores obtained from the Nelson Reading Test: "The pupils' median performance on the vocabulary test was 0.7 grades below national U. S. norms and 1.2 grades below

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[11]Newfoundland Department of Education Newsletter, St. John's, Vol. 16, No. 2 (October, 1964).

[12]Newfoundland Department of Education Newsletter, St. John's, Vol. 17, No. 2 (October, 1965).

[13]Province of Newfoundland and Labrador, Report of the Royal Commission on Education and Youth, Vol. 1 (St. John's: The Queen's Printer, 1967), pp. 38-43.

[14]H. W. Kitchen, A Preliminary Study of Demographic and Socio-Economic Factors in the Atlantic Provinces and Their Relationships to Measures of Educational Output (mimeographed, October, 1967), p. 1.

on comprehension."[15]

II. INTELLIGENCE AND READING ACHIEVEMENT

Researchers tend to disagree as to the exact relationship between intelligence and reading achievement. The bulk of the research findings indicates, however, that the two are related. Karlin notes that: "There appears to be a significant relationship between I.Q. and reading achievement."[16] Jan-Tausch reported that his advanced readers were better able to do abstract thinking than were his poorer readers."[17] Gray quotes a study which found that: "Reading Comprehension and Reading Rate correlate significantly with I.Q. scores."[18] Wheeler, on the other hand, draws attention to the fact that intelligence and reading do not necessarily go hand in hand. He notes that: "There is probably greater reading retardation among the mentally superior than among the mentally dull students."[19]

The nature of the relationship between intelligence and reading

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[15]Hector A. Pollard, "Socio-Economic Versus Educational Inputs as Related to Grade Six Reading Achievement in Rural Newfoundland" (unpublished Master's thesis, Memorial University of Newfoundland, 1970), p. 67.

[16]Karlin, op. cit., p. 390.

[17]James Jan-Tausch, "Concrete Thinking as a Factor in Reading Comprehension," Challenge and Experiment in Reading, Proceedings of the International Reading Association (Newark, Delaware: The Association, 1962), p. 163.

[18]William Gray, "What Does Research Reveal About Reading in the Content Areas?", Journal of Educational Research, Vol. 53 (February,1960), p. 205.

[19]L. R. Wheeler, "The Relation of Reading to Intelligence," School and Society, Vol. 70 (October, 1949), p. 225.

achievement will differ somewhat depending on whether the correlation is conducted with a verbal or non-verbal intelligence test. Verbal intelligence test scores tend to show a higher correlation with reading ability than do non-verbal intelligence test scores. This is because of the high reading content contained in verbal intelligence tests. Gray provided support for this contention in his study in which he found that the correlation between reading achievement scores and verbal intelligence test scores was higher than that between reading and non-verbal intelligence test scores. As would be expected, Gray found that:

> Verbal scores are affected more than non verbal scores by reading proficiency. Also, verbal intelligence scores give a somewhat better prediction of academic achievement, including reading achievement, than do non verbal scores.[20]

Comparable studies supporting the thesis that a substantial relationship exists between intellectual ability and reading ability have been conducted by Harootunian, Maney, Wheeler, and Hage and Stroud.[21]

Wheeler, in his study, notes that the close relationship between reading ability and intelligence probably warrants the general practice of testing reading ability as one of the factors in measuring intelligence. He cautions, however, that reading ability and intelligence are not one and the same thing. While it takes certain degrees of mental maturity to develop reading proficiency, there are many individuals of normal and

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[20] Gray, op. cit., p. 205.

[21] Berg Harootunian, "Intellectual Abilities and Reading Achievement," Elementary School Journal, Vol. 16 (October-May, 1965-1966), pp. 386-392; Ethel Maney, "Literal and Critical Reading in Science," Journal of Experimental Education, Vol. 27 (September, 1958), pp. 57-64; Wheeler, op. cit., pp. 225-227; Dean S. Hage and James B. Stroud, "Reading Proficiency and Intelligence Scores, Verbal and Non Verbal," Journal of Educational Research, Vol. 52, No. 7 (March, 1959), pp. 258-262.

superior mentality who have reading difficulties. The mental capacity of such students cannot be accurately determined by intelligence tests which use reading as the basic stimulus for mental performance. It was for this reason that the intelligence test employed in this study was non-verbal in nature. A non-verbal intelligence test gives a rating of intelligence which has not been biased by the reading ability of the student. To compare reading ability with verbal intelligence is to some degree to compare reading with reading. This could consequently lead to misleading conclusions as to the exact nature of the relationship between the two variables.

It is evident from the research here presented that there is no clear consensus on the relation of reading to intelligence. DeBoer gives what would appear to be a valid synthesis of the findings of the research related to this question when he states that:

> There is a high correlation between reading ability and intelligence as measured by existing tests. While it is true that many students of average and above average intelligence do not read well, and many more do not read up to their capacities, in general the brighter students are the better readers.[22]

III. SEX AND READING ACHIEVEMENT

Research shows that on the whole girls have an edge over the males in school achievement which also includes reading achievement. The degree to which the discrepancy exists is not, however, fully established, as different studies have produced different results. Cardon quotes studies undertaken by five independent sources in the U. S., Scotland and England

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[22] DeBoer and Whipple, op. cit., p. 57.

in which it was found that: "The ratio of boys who are retarded in reading to girls experiencing the same difficulty is two to one."[23]

Karlin feels that there is a greater difference between the sexes. He reports that: "Boys with serious reading problems outnumber their female counterparts by about four to one."[24]

A study of the reading situation on a national scale in the U. S. notes findings that are even more alarming. This study suggests "that the number of boys who either read poorly or not at all exceed the number of girls ten to one."[25]

Samuels, in a study of sex differences in reading achievement, found that girls were superior to a degree sufficient to be statistically significant. She summarized her findings as follows:

1. Sex differences in favour of girls great enough to have statistical significance were found between random samples in mental age, I.Q., drawing test scores, reading ability, teachers' ratings and scores on the Monroe Aptitude Test.

2. Sex differences in measures of achievement were found in favour of the girls with critical ratios which showed the difference to be statistically significant.[26]

Studies conducted by Gates, Holmes and McCullough[27] support the presence

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[23]Bartell Cardon, "Sex Differences in School Achievement," Elementary School Journal, Vol. 68 (October-May, 1967-1968), pp. 427-434.

[24]Karlin, op. cit., p. 392.

[25]Reading Crisis, op. cit., p. 7.

[26]Fra L. Samuels, "Sex Differences in Reading Achievement," Journal of Educational Research, Vol. 36 (April, 1943), p. 595.

[27]Arthur I. Gates, "Sex Differences in Reading Ability," Elementary School Journal, Vol. 61 (1960-61), p. 432; Jack Holmes, "Speed, Comprehension and Power in Reading," Challenge and Experiment in Reading, Conference

of similar disparities favouring females.

DeBoer supports the contention that girls are superior to boys in reading ability. He contends that while boys tend to excel in such subjects as science, mathematics and history, girls are more proficient in all kinds of verbal activity. The author feels that these differences are not due to any differences in the intelligence of boys and girs. Rather he lists the following as the probable causes of the differences:

1. Boys mature later than girls.
2. Cultural influences assign diverse roles to boys and girls.[28]

Gates conducted a study of sex differences in reading ability based on test scores of 13,114 students. In this study he found that boys outnumbered girls in obtaining significantly lower scores in speed of reading, reading vocabulary and level of comprehension.[29] Gates disagrees with the theory that these differences are attributable to differences in maturation levels, since he contends that the superiority of girls appears to be, on the whole, as great in the upper grades as in the lower. In place of the maturation reasoning, he favours what he calls a social environment explanation. He postulates that it is because more girls than boys pursue a kind of life in which more respect, more incentives and more opportunities appear earlier and persist longer. Contrariwise, more boys than girls may find

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Proceedings of the International Reading Association (Neward, Delaware: The Association, 1962), p. 145; Constance M. McCullough, "Reading," Review of Educational Research, Vol. 28 (April, 1958), p. 100.

[28]John DeBoer, "Reading Research and the High School Student," English Journal, Vol. 47 (January-December, 1958), p. 275.

[29]Arthur I. Gates, op. cit., p. 432.

little or no early need for learning to read.[30]

Cardon quotes a series of studies to support the environment theory. He quotes researchers who advocate a policy for admitting boys into schools six months or so later than girls. He questions the hypothesis that this would result in less frustration and fewer dropouts of boys in high school because of failing or unsatisfactory work. In assessing the differences in reading ability between the sexes, he feels that two basic questions must be asked: Is there actually a difference between the achievement of boys and girls and if so, is it amenable to a simple solution.[31] He notes that the first of these two questions is more easily answered than the second and he quotes a series of studies which support the presence of a disparity favouring girls. In answering the second question he, like Gates, attributes the difference between the sexes to nurture rather than nature. He feels that the roots of the sex differentiation must be sought in early infancy. The explanations he gives include:

1. The mother is the speech model and girls identify more easily with the mother than do boys in that the mother's verbal model is more pleasant and satisfying to girls.

2. There appear to be different parental attitudes towards the two sexes. Girls are preferred to boys since they are less active and consequently more easily controlled.

3. Boys are encouraged to participate in games of an active and outdoor nature. The girl remains closer to the mother and follows her model.

4. Girls receive more training in conversational involvement because their interests are similar to the mother.[32]

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[30]Ibid.

[31]Cardon, op. cit., pp. 427-434.

[32]Ibid.

Cardon feels that through a combination of these factors girls perform better than boys in certain areas of the school curriculum, including reading achievement.

It cannot be said for certain whether such differences exist because of the educational system or in spite of it. The findings indicate, however, the need to assess the situation at the local level. Should similar differences be found to exist several implications become obvious:

1. The need to plan procedures which will meet the needs of the students of both sexes to assure optimum performance within the individual's capacity.

2. The need to plan and implement techniques of instruction which provide for the differences between the sexes.

3. The need for further investigation to determine the cause of sex differences and to see if the causes put forth by research apply at the local level.

IV. READING AND ACADEMIC SUCCESS

Few would dispute the fact that a relationship exists between reading and academic success. It has been documented by the findings of research that success in school is tied directly to reading achievement. Austin notes that: "Estimates by reading authorities indicate that from 80-90% of the study activities of Junior and Senior high schools involve reading."[33] Carter found that the better readers have higher averages,

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[33]Mary C. Austin, Clifford L. Bush and Mildred H. Hobbner, Reading Evaluation, Appraisal, Techniques for School and Classroom (New York: The Ronald Press Co., 1961), p. 38.

study better and are happier in school than poorer readers.[34] Penty found that there is a high positive relationship between reading and the school dropout. She studied a group of school dropouts six years after their leaving school and found that in most cases poor reading was given as the cause of their dropping out. She also reports on a study which found that "of students whose reading was in the lowest quarter close to 50% left school before the twelfth grade, while just over 14% of the highest quarter left before graduating."[35]

The school dropout rate in the province of Newfoundland, which has traditionally been the highest in Canada, reaches its peak in Grade IX. As far back as 1963 publications from the Newfoundland Department of Education have expressed a concern that this high dropout rate has been influenced by weakness in reading.[36]

Studies have shown that reading ability affects success in virtually all of the subject areas of the school curriculum. Fay reported that "students of superior reading ability achieved significantly better in social studies than students who did not read as well."[37] Call and Wiggin found that "students who received instruction (from an English teacher)

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[34]Harold Carter, "Over and Underachievement in Reading," Journal of Educational Research, Vol. 15 (September,1964), p. 183.

[35]Ruth Penty, "Reading Ability and the High School Dropouts," Teachers' College Contributions to Education (New York: Bureau of Publications, Columbia University, 1956), p. 10.

[36]Newfoundland Department of Education Newsletter, St. John's, Vol. 15, No. 3 (1963).

[37]Leo Fay, "The Relationship Between Reading Skills and Selected Areas of Sixth Grade Achievement," Journal of Educational Research, Vol. 43 (March,1950), p. 545.

achieved better results in mathematics than did students who did not receive such instruction from their mathematics teacher."[38] The findings of Hinsdale, Traxler and Townsend indicate a high positive relationship between reading achievement and achievement in the language arts; Hinsdale's investigation revealed a high correlation between reading and a specific linguistic competence, namely the ability to write.[39] A similar finding was reported in a study by Heys in which he sought information on how students learn to write. Heys found that for many students reading is a positive influence on writing ability.[40]

In a follow up to the work of Heys, Christiansen sought to determine the relationship between reading ability and written composition. His study involved a control group which received reading instruction, and an experimental group which received no reading instruction but which wrote three times as many themes as did the control group. Christiansen concluded that "the reading done in the control classes did as much to promote growth in writing as did the writing of three times as many themes in the experimental classes."[41]

In a study investigating the relationship between written composition, reading ability and reading habits, and using the same reading test

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[38]R. Call and N. Wiggin, "Reading Mathematics," Mathematics Teacher (February, 1966), p. 153.

[39]Hinsdale, op. cit., p. 15.

[40]Frank Heys, "A Theme a Week Assumption: A Report of an Experiment," English Journal, Vol. 51 (May, 1962), p. 320.

[41]Mark A. Christiansen, "An Experimental Study in Composition: Extensive Writing vs. Some Writing Plus Reading," University of Kansas Bulletin of Education, Vol. 19 (May, 1965), p. 131.

as that employed in this study, Jones gave further evidence of the importance of reading in a student's over-all success in school. He found that "reading ability is a better predictor of writing ability as pertaining to written composition than such variables as intelligence, socio-economic status and sex."[42]

Studies by Traxler and Townsend have shown that there is a positive correlation between reading achievement and achievement in other language arts, even when controlling for intelligence.[43]

Hildreth wrote an essay on the interrelations among the language arts in which she contends that:

> Reading enriches Language in several ways. Through reading children grow in linguistic awareness; for the reader is brought into contact with meanings of terms that are new to him, the reading context gives practice in using correct sentences, and the child in the course of reading, learns about different kinds of words used in sentences. . . . Reading stimulates a wish to write something in good form and also creates occasions for writing.[44]

Hildreth further notes that:

1. From reading, the pupil gains knowledge of vocabulary, sentence structure, grammatical form used in speaking and writing.

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[42]Edward A. Jones, "An Investigation of the Relationship Between Written Composition and Reading Ability and Reading Habits" (unpublished Master's thesis, University of Alberta, 1966), p. 85.

[43]Arthur E. Traxler, "Reading and Secondary School Achievement," 1946 Achievement Testing Programs and Independent Schools and Supplementary Studies, Educational Records Bulletin No. 45 (New York: Educational Records Bureau, 1946), pp. 59-62; Agatha Townsend, "Reading and Achievement Test Scores in Elementary Grades," 1946 Achievement Testing Programs and Independent Schools and Supplementary Studies, Educational Records Bulletin No. 45 (New York: Educational Records Bureau, 1946), pp. 54-58.

[44]Gertrude Hildreth, "Interrelationships Among the Language Arts," Elementary School Journal, Vol. 48 (June,1948), p. 539.

2. From reading the pupil derives generalizations about words and word building.

3. Reading develops language sense and gives practice in using language correctly.

4. Reading furnishes ideas to write about and furnishes a basis for discussion.

5. Reading furnishes the stimulus and ideas for creative writing.[45]

Gaston sought to determine whether students who were given instruction in reading in Grades VII and VIII would produce significant gains in reading achievement and in achievement in other academic subjects. She found that such gains did result.

Some of the conclusions she reached were that:

1. Continued reading instruction results in 1) maintaining, refining and strengthening reading skills already gained; 2) reducing the probability that regression in reading proficiency might occur during the Junior High School years; and 3) meeting new demands for reading specialized materials in the High School curriculum.

2. A systematic reading program in the Junior High School level produces concomitant gains in ability to achieve in 1) arithmetic, 2) social and related sciences, and 3) general academic achievement.

3. A formal systematic program of developmental reading in Junior High School has statistically significant effect upon reading achievement and general achievement among initially good readers as well as poor readers. Students of varying abilities will thus benefit from such a program.

4. A formal systematic program of developmental reading in Junior High School may constitute a more economical approach for applying the school's resources than remedial work affords.[46]

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[45] Ibid., p. 541.

[46] R. C. Gaston, "The Effect of Systematic Developmental Reading Instruction at the Junior High School Level Upon Reading Ability and General Achievement" (unpublished Ph.D. thesis, Louisiana State University, 1956), p. 14.

The Newfoundland Department of Education investigated the relationship between reading ability and success in Grade IX literature, history and geography. Also investigated was the relationship between reading ability and success in Grade IX public examinations. The summary of findings reported the following:

1. Eighty percent of the good readers were successful in the Grade IX examinations; not quite thirty percent of the poor readers passed.

2. All calculations consistently showed that higher reading ability was reflected in higher marks and higher percentage of passes in content subjects.[47]

Carefully conducted studies show that median reading achievement has not changed significantly in the last thirty years. Yet one authority in the field of reading points out:

> . . . despite the fact that the average attainment in reading of boys and girls today is probably as good as or somewhat superior to that found at anytime in the past, there are more poor readers in the schools now than ever before--especially in the Junior and Senior High Schools.[48]

Administrators, teachers and parents are becoming increasingly aware of the problems in reading being experienced by students today. In attempting to raise the general level of reading achievement, one becomes aware of unfavourable conditions such as heavy teaching schedules, large classes, lack of special training of teachers, excessive costs of employing specialists, lack of suitable materials for instituting formal reading programs peculiar to the separate subject areas. Yet to ignore the issue

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[47]Newfoundland Department of Education Newsletter, St. John's, Vol. 16, No. 2 (October, 1964), p. 8.

[48]Paul Witty, "Developing Better Reading Skills and Habits in High School Pupils," Bulletin of the National Association of Secondary School Principals, Vol. 38 (December, 1954), p. 29.

is, as was noted earlier, to have programmed illiteracy, since students experiencing reading problems will produce at a decreasing proficiency level as the materials become more difficult to read. This view has been expressed by Traxler and Townsend, Chatham, Yoakam, Gorman, McDowell, and Gray.[49]

The need for further instruction at all levels is increased by the emphasis upon extensive reading in the modern curriculum, dependence of students upon printed materials for large portions of the information and experience to be acquired, and by the findings of research. Intellectual independence can more easily be achieved among students who have mastered the skills required for gaining understanding from printed symbols. As indicated earlier, many studies have shown that there exists a positive relationship between the ability to acquire and communicate thoughts and understandings through reading, and achievement in subject matter fields.

Recently these findings have been supplemented by studies of the relationship between general reading achievement and achievement in different subject areas. Artley suggests that if teachers of reading can bring about improvement in general reading, there probably will be concomitant

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[49]Arthur E. Traxler and Agatha Townsend, Another Five Years of Research in Reading (New York: Educational Records Bureau, 1946), pp. 23-24; Theodore R. Chatham, "How Can We Develop Better Reading Skills and Habits in Junior and Senior High School Students?", Bulletin of the National Association of Secondary School Principals, Vol. 38 (April, 1954), p. 324; Gerald A. Yoakam, "An Ounce of Prevention in Reading," Journal of Educational Research, Vol. 37 (October, 1943), pp. 100-109; Frank H. Gorman, "Teaching Upper Elementary High School Pupils to Read," School Review, Vol. 61 (September, 1943), pp. 423-427; Kyle C. McDowell, "The Teaching of Reading in Junior High School," Bulletin of the National Association of Secondary School Principals, Vol. 38 (December, 1954), pp. 36-39; William S. Gray, "Relation of Basic Instruction in Reading to the Total Reading Program," Education, Vol. 74 (May, 1954), p. 537.

improvement in reading in specific areas.[50] Swanson, after conducting a carefully controlled experiment concerning skills required in content subjects, concluded that poor general readers are usually poor on special subject matter materials.[51] Other studies supporting the conclusion that general reading ability and the ability to make progress in school subjects are closely related were conducted by Finck, Dickinson, and Toops.[52]

Comparing the characteristics of good and poor eleventh grade students, Aukerman reports that:

> Results indicated that general reading ability is the most significant differentiating factor between good and poor eleventh grade students in all four (English, Social Sciences, Science and Mathematics) academic fields.[53]

The investigation into this relationship appears to be well summarized by Gray who writes:

> All the findings . . . supported the view that teachers at every level should do everything possible to develop a high degree of

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[50]Sterl A. Artley, "A Study of Certain Relationships Existing Between General Reading Comprehension and Reading Comprehension in a Special Subject Matter Area," Journal of Educational Research, Vol. 57 (February, 1964), pp. 464-473.

[51]Esther J. Swanson, "A Study of the Relationship Among Various Types of Reading Scores on General and Science Materials," Journal of Educational Research, Vol. 36 (October, 1942), pp. 81-90.

[52]Edgar M. Finck, "Relation of Ability in Reading to Success in Other Subjects," Elementary School Journal, Vol. 36 (December, 1935), pp. 260-267; Charles S. Dickinson, "A Study of the Relation of Reading Ability to Scholastic Achievement," School Review, Vol. 33 (October, 1925), pp. 616-626; Myrtle D. Toops, "The Core Program Does Improve Reading Proficiency," Educational Administration and Supervision, Vol. 40 (December, 1954), pp. 494-500.

[53]Robert C. Aukerman, Jr., "Differences in Reading Status of Good and Poor Eleventh Grade Students," Journal of Educational Research, Vol. 41 (March, 1948), p. 511.

competence in the basic reading skills common to all reading and all study activity.[54]

V. PROSPECTUS

The preceding studies and literature indicate that the teaching of reading demands more attention than has been relegated to it in the past, especially at the secondary school level. This philosophy is expressed in an English Bulletin published by the San Francisco Schools. It states that:

> The organized teaching of reading as a skill should not suddenly stop at the end of Elementary School. Most students in junior and senior high school and even in colleges need continuous help in improving their reading for speed, understanding and appreciation. Such improvement is of vital importance, since inability to read is one of the greatest single causes for frustration in students and is thought by many authorities to be a basic cause of failure and dropping out.[55]

The primary and elementary schools have traditionally been delegated the responsibility of teaching the reading skills necessary for scholastic achievement. Once students passed through the elementary grades reading was replaced by literature and there was often minimal, if any, relationship between the two. In view of this fact, it is important to keep a close account of the reading abilities of students at the secondary school level. What is the trend in the development of reading ability throughout the secondary school years? Do students in the same grade classifications represent the same or widely different levels of competence

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[54] William S. Gray, "Reading," Encyclopedia of Educational Research, Walter S. Munroe (ed.) (New York: The Macmillan Company, 1950), p. 999.

[55] Classroom Practices in the Teaching of English, San Francisco Unified School District (1952), p. 49.

in reading?

In a study conducted by Henry, attention is focused on the wide range of reading ability which may exist within any given school. In the study he found that "9% of the twelfth grade students fell below the ninth grade median . . . . 7% of the ninth grade students tested reached or exceeded the median for the twelfth grade students."[56] It is probable that a similar range in reading ability may exist within any given classroom. Classroom teachers faced with such a situation must vary considerably the teaching methods in order to reach students of varying abilities in reading. Failure to recognize such differences heightens the possibility that a proportion of the student body comprising the lower sector will fail to achieve academically. Such students, however, with individual attention could conceivably experience success. Students in this category who fail to achieve may in some instances be victims of an educational system which has failed in its responsibility to the students. Such a possibility has, in recent years, directed attention towards the reading ability of secondary school students. Brett, in her study, summarized the major findings of the research in this area. Two major findings were worthy of note.

1. Lack of reading skills at the high school level was a very real problem.
2. Remedial reading programs were effective at the high school level. While it was generally believed that all teachers should be teachers of reading, it seemed natural to place English teachers in charge of reading programs.[57]

LaBrant supported the cause for directing more attention towards reading at the secondary school level by suggesting that all students

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[56]Henry, op. cit., p. 18.

[57]Brett, op. cit., p. 31.

entering high school should be tested for reading ability. She contends that remedial classes should then be set up to provide the necessary help for those with sufficient disabilities to warrant remedial instruction.[58] As LaBrant notes, "even the untrained teacher can segregate his poor readers and provide large quantities of simple but interesting material."[59] Detailed remedial instruction in reading is, however, the responsibility of the specialist and this researcher shares the view of Rogers who states as imperative the need for more remedial consultants.[60] Clifford cites the necessary ingredients of a secondary school reading program:

> . . . flexibility of procedure, increasing independence of students, increasing amounts of committee work, varied attacks on new words, variety of material, thoughtful consideration of ideas gained in reading, favourable reading atmosphere in the classroom.[61]

This thesis is supported by Bond who made an extensive survey of the relationship of reading to achievement in the content areas in the ninth grade. She draws attention to the need to direct a concerted effort towards teaching reading skills on the basis of the relationship which she found it had with scholastic achievement. She summarized her findings with the following statement and suggestions:

> . . . These findings demonstrate the fact that combining achievement into one general measure obscures many more subtle relation-

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[58]Lou LaBrant, The Teaching of Literature (New York: Harcourt Brace and Company, 1931), p. 42, cited by Brett, op. cit., p. 32.

[59]Ibid.

[60]Virgil M. Rogers, "Dr. Flesch's Cure-All," Atlantic (December, 1955), quoted in English Journal, Vol. 45 (April, 1956), p. 216.

[61]Mary Clifford, "Reading in the Junior High School," English Journal, Vol. 46 (October, 1957), p. 429.

ships which exist between reading skills and scholastic achievement in various school subjects. This study suggests:

1. The need for specialization in reading ability to meet requirements of different subjects.

2. The need for further information about the types of reading skills required in specific subjects at different grade levels. . .

3. The need for teaching reading and study techniques for each subject.[62]

The secondary schools in the province of Newfoundland have no prescribed organized reading program. The Newfoundland Department of Education recognized the need to teach reading skills beyond the elementary grades as far back as 1964 when it stated that "at no point in a person's education has he achieved sufficient mastery of reading skills that further development is unnecessary or undesirable."[63] It is conceivable that individual schools may already provide reading instruction at the secondary level. Where such instruction is given it is most likely included as a part of the English program. Such an approach is at best haphazard and the success possible through such an approach is questionable.

The teaching of the skills involved in the reading process, whether through a developmental or a remedial reading program, involves a considerable amount of planning. Early lists the ten steps she feels must be followed in planning and implementing such a program.

1. Continuous instruction in reading from kindergarten to grade twelve for all.

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[62]Eva Bond, "Reading and Ninth Grade Achievement," Teachers' College Contributions to Education, No. 756 (New York: Bureau of Publications, Columbia University, 1938), pp. 53-54.

[63]Newfoundland Department of Education Newsletter, St. John's, Vol. 16, No. 2 (October, 1964).

2. Integration of reading skills with other communication skills, writing, speaking, listening.

3. Specific instruction by subject matter teachers in how to read and study in their special fields, using the basic reading materials of their courses.

4. Cooperative planning by all teachers so that skills will not be overlooked or overstressed.

5. Adjusted reading materials in all subjects for slow, average and superior students.

6. Guidance in free reading.

7. Emphasis on the uses of reading as a source of information, as an aid to personal and social development, and as a means of recreation.

8. Corrective or remedial instruction for seriously retarded readers.

9. Measurement of growth in skills by means of standardized and informal tests; study of students' application of techniques in all reading habits.

10. Evaluation of the uses of reading through study of the amount and quality of voluntary reading; study of effect on achievement in all school subjects; effect on percentage of drop-outs.[64]

The research findings and opinions of the authorities in the field of reading illuminate the need to include some formal reading instruction from primary through secondary school. The type of program employed at the secondary school will depend on the needs of the students and the degree of reading problems being experienced. Remedial reading programs will be required where the reading problems are sufficient to warrant them. Where reading problems are less severe or non-existent the teaching of basic reading skills on a developmental and subject area basis may alleviate minor problems or prevent their occurrence.

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[64]Margaret J. Early, "About Successful Reading Programs," English Journal, Vol. 46 (October, 1957), p. 395.

A thorough discussion of the measures to be taken in providing reading instruction at the secondary school level would be incomplete without consideration being given to several points of caution to be followed in this undertaking. Much of the literature reporting on reading ability expresses concern that certain proportions of a student body record scores below a norm for the age or grade. A great deal of confusion appears to exist in this regard.

One aspect of the misunderstanding becomes apparent in that researchers, comparing student scores to those of a norm group, sometimes express concern that a certain proportion of students, perhaps thirty percent, fail to reach the norms score on a test. The point which is missed is that, by its very nature, a norm is but an average score. It is thus a natural phenomenon that in any given student body of random selection a substantial proportion will score below the norm.

A second questionable procedure sometimes followed relates to the yardstick frequently used to rate a student's reading status. It is a common but questionable procedure to label a student according to his position relative to a norm, and then to gear his reading instruction with the ultimate goal of having him reach the norm. Such an approach disregards individual differences in students and ignores the existence of varying abilities. Although it is important to ascertain a student's position relative to a norm or to classmates, this should not be the primary motive for assessing reading status. A more relevant rationale would be to compare reading ability scores with student potential, and to examine the discrepancy between where a student is actually reading in comparison to where he is capable of reading, given his intellectual abilities. The aim in providing reading instruction should not be directed towards having

students read at a certain grade level or norm, but rather towards having the students read as well as they possibly can. Individual differences are increased, not diminished, by good teaching.

A third point worthy of note relates to the diagnosing of students with reading problems. It is conceivable that any given body of students with reading problems may be comprised of students with two entirely different types of problems. A certain percentage of the group may be poor readers because they possess intellectual abilities which prevent them from reading any better. The second group includes those who possess average or above average intellectual abilities. It is imperative that a distinction be made between these two groups as the type of treatment will not be the same for both. Only those students comprising the second group should be included in a remedial reading program since it is only those students who are capable of significantly improving their reading ability. The students comprising the first group, since they do not have the intellectual capabilities of improving their reading ability, should be placed in a program in which they are provided with materials which are geared to their reading and intellectual abilities.

VI. SUMMARY

The evidence presented in the research and studies quoted above clearly elucidates the importance of reading ability in the educative process. The findings of most research studies indicate that reading ability is a significant factor in determining academic success. It would appear also that girls are better readers than boys. The degree to which intellectual ability affects reading ability is more difficult to establish but generally, the more intelligent students are the better readers. A

large percentage of the students' time in school is devoted to reading or to activities involving reading. This points out the importance of endeavouring to teach students to read well if they are to achieve in school. Chapter four of this study will report the findings of the hypothesized relationships between reading and the various independent variables.

CHAPTER III

METHODOLOGY

This chapter discusses the test instruments employed in the study as well as the procedures involved in the collection of the data.

I. AREA SELECTED FOR STUDY

This study was one of three related studies conducted under the auspices of the Department of Curriculum and Instruction at Memorial University of Newfoundland. The three studies were carried out at approximately the same time and involved the same schools and in part the same student and teacher population.

There were a number of reasons for selecting the Burin Peninsula as the area of study, some of which have been noted. In addition to those outlined previously, the others are:

1. It offered an opportunity to conduct research in a rural setting. Easy accessibility plus large concentrations of populations frequently influence researchers to carry out research studies in urban centers. Because of this, available information on less accessible rural areas is often minimal.

2. This particular area is also an extremely diverse one enabling the researcher to gather information on students from varying cultural, social and economic backgrounds.

3. Research leading to an improvement in the quality of education

can be most successful in instances where the personnel involved in teaching within the schools recognize a need. A necessary prerequisite to the solution of any problem is the recognition of its existence. A request for assistance coming from within a school system is evidence of the recognition of a need.

The Superintendent of the board concerned informed the researcher that the Grade IX, X and XI students in the area numbered approximately 735. These students were housed in twenty-six classrooms in six schools spread over six communities and seventy road miles.

II. REASONS FOR SELECTING SECONDARY SCHOOL

The choice of secondary school students is significant in this study. There appears to exist an unwritten assumption on the part of the educational authorities and curriculum planners, that secondary school students, by virtue of having passed through the primary and elementary grades, have mastered the reading process. This is evidenced from the fact that the Program of Studies for Newfoundland Schools makes no specific reference to teaching reading at the secondary school level. The present study examines this assumption to determine whether it is indeed a legitimate one. Many secondary schools, recognizing the existence of reading problems, have done little to overcome them. Since the Program of Studies makes no reference to teaching reading at the secondary school level, teachers may not feel it their responsibility to teach reading skills. In addition, many teachers have very little knowledge of the procedures to follow in teaching such skills.

On the basis of the findings of this study, recommended procedures are outlined that may lead to improvements in the quality of reading at the

secondary school level.

Records of student academic success obtained from the Newfoundland Department of Education indicate that a high percentage of secondary school students, notably in Grade IX, traditionally fail to complete their grade. It was policy until 1970 for the Provincial Department of Education to require secondary school students to write external public examinations set by that department at the end of each school year. Since 1971, student achievement in Grades IX and X have been evaluated by the local school authority. The academic performance of Grade XI students in the province is currently evaluated by both the Provincial Department of Education and the local school authority on a shared evaluation basis. Table I indicates the percentage of failures in the provincial examinations in selected years.

III. COLLECTION OF DATA

In January 1972 permission was sought and obtained from the Superintendent of the Roman Catholic School Board for the Burin Peninsula to conduct the necessary research in the secondary schools under the jurisdiction of that board. The correspondence comprises Appendices B and C. A subsequent letter (Appendix D) sent to the Superintendent in February explained the exact nature and purpose of this particular study. The Superintendent contacted the school principals involved advising them of the intention and details of the study.

A tentative date of May 1, 1972 was set as the time for conducting the testing program. This date was later changed to May 8, 1972 due to non-arrival of test materials.

The Cooperative English Test, Reading Comprehension and The Lorge-

TABLE I

PERCENTAGE OF FAILURES IN PROVINCIAL EXAMS IN SELECTED YEARS[1]

Grade	Year	Percentage Failing
IX	1966	44.6
	1967	43.7
	1970	48.5
X	1966	39.6
	1967	32.9
	1970	32.2
XI	1966	33.4
	1967	26.3
	1970	29.6
	1971[a]	37.8

[a]1970 is the last year in which Grade IX and X students wrote public examinations.

[1]Newfoundland Department of Education Newsletter, St. John's, Vol. 18, No. 11 (September, 1967); Vol. 21, No. 20 (September, 1970); Vol. 21, No. 29 (September, 1971).

Thorndike Intelligence Test were administered to the students during the week of May 8-11, 1972, as shown in Appendix G. The tests were hand-scored by the researcher and the results were key punched on computer cards.

On June 7, 1972, a letter was forwarded to the six school principals requesting a list of the over-all average marks obtained by the students in Grades IX and X as recorded on their final grade reports (Appendix E). Similar information for the Grade XI students was obtained in August from the records of the Department of Education.

The processing of this data was undertaken by the computer center at Memorial University. A description of the procedures followed is outlined below.

IV. POPULATION UNDER STUDY

Records obtained from the office of the school board indicated that as of April 3, 1972, there were twenty-six classes of students in Grades IX, X and XI for a total of 735 students. However, because of transferrals, student absenteism and dropouts, complete information was obtained on only 624 students (Appendix H). For a breakdown of the number of students by grade and sex, see Table II.

V. INSTRUMENTATION

Three instruments were employed in the study. These included two standardized tests, one being a non-verbal intelligence test, the other a reading test. The information on student academic success was obtained through the use of a questionnaire sent to the school principals and through personal consultation with the Department of Education. From this a record of each student's performance in school was obtained as recorded on his

TABLE II

ENROLMENT BY GRADE AND SEX

Grade	Sex	
	Male	Female
IX	124	151
X	98	102
XI	58	91
Total	280	344
Total M and F	624	

final grade report for the school year 1971-1972.

Instrument No. I, The Cooperative English Test, Reading Comprehension

This test is divided into two sections: Part I Vocabulary, Part II Reading Comprehension. Together, Part I plus Part II give a Total Reading score. This particular test was selected because, of the reading tests available, it was best suited to the needs of this study.

Validity. The validity of any instrument is determined by the extent to which it measures that which it attests to measure, in this case the skills involved in the reading process. This particular test was revised in 1960, and very few studies exist dealing specifically with the test's validity. It is the publisher's contention that content validity is best attained through the use of "well qualified people" who have a thorough knowledge of the reading process, to construct items to measure the specified skills. This process was followed in the construction of

this test. A review by Fleming in The Sixth Mental Measurements Yearbook notes that the Cooperative English Tests have undergone substantial revisions, and a wealth of background and interpretative information has been accumulated.[2] The Technical Report accompanying the test notes the results of eighteen studies concerned with the predictive validity of earlier forms of the test. In one of the studies, Traxler found the predictive validity coefficients of the Reading Comprehension sub-tests to be: Vocabulary, 0.57; Total Reading, 0.61.[3] In a similar study, Webb reports a finding of 0.71 on Total Reading.[4] The present test is similar to the former editions to the extent that the findings pertaining to its validity are felt to be relevant for the edition of the test used in this study.

Reliability. The following reliability coefficients between parallel forms (Form 2A and Form 2B) of the Reading Comprehension Test are reported in the Technical Report accompanying the test.[5] It involved 780 Grade X students, and the reliability coefficients were, in Vocabulary, 0.89; Total Reading, 0.94.

Instrument No. II, The Lorge-Thorndike Intelligence Test

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[2]W. G. Fleming, "Review of Reading Comprehension, Cooperative English Tests" in O. K. Buros (ed.) The Sixth Mental Measurements Yearbook (Highland Park, New Jersey: The Gryphon Press, 1965), p. 806.

[3]Cooperative Test Division, Cooperative English Test: Technical Report (Princeton, New Jersey: Educational Testing Service, 1960), pp. 13-17.

[4]Ibid.

[5]Ibid., p. 19.

The non-verbal section of The Lorge-Thorndike Intelligence Test, Forms 4AN and 5AN was selected for this study to give a measure of intelligence. The non-verbal section was chosen because the amount of reading it requires of the student is minimal. This is done to insure that no student's intelligence score is lowered because of his inability to read the material. Measures of intelligence based on verbal tests are subject to error in that a student may score low on a test simply because he has difficulty reading the material. Such a score may give a false picture of a student's true mental capacities. The nature of this study was such that it was important to get as true a measure of intelligence as possible.

The intelligence quotient obtained from this test is designed to have the same mean and standard deviation at each grade level, the mean being 100 and the standard deviation 16.

In giving an appraisal of this test, one reviewer notes that:

> This 1957 version of The Lorge-Thorndike Intelligence Test is among the best group test available from the point of view of psychological constructs upon which it is based and that of statistical standardization.[6]

Another reviewer states that:

> The Lorge-Thorndike Tests should be accorded a place among the best of our group intelligence tests. They are well designed, easily administered and scored, and what is especially noteworthy, the uses recommended for them are reasonable and defensible.[7]

Validity. In considering the validity of The Lorge-Thorndike Intelligence Test, the test manual discusses the rational and statistical

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[6]Oscar K. Buros (ed.), The Fifth Mental Measurements Yearbook (Highland Park, New Jersey: The Gryphon Press, 1964), p. 479.

[7]Ibid., p. 481.

validity. To insure the rational validity of the test, each item was examined by the authors to determine if it required students to make responses which might be called "intelligent." The items in this test "were selected so that, for the most part, they deal with relationships," thus, the students are required both to find and apply a specific principle. In other words, these tests have been designed to measure reasoning ability.[8]

As a means of establishing the statistical validity of The Lorge-Thorndike Intelligence Test, studies were undertaken by the authors to measure its relationship with other criteria such as the Iowa Every Pupil Grade Equivalent, the Iowa Test of Basic Skills, the Stanford Intermediate, the California Achievement Tests, the California Test of Mental Maturity, the Kuhlmann-Anderson and Otis Intelligence Tests. For example, the correlation between The Lorge-Thorndike and the California Test of Mental Maturity, Grades X and XI was found to be .72 and .74 respectively, and between The Lorge-Thorndike I.Q. and the Otis I.Q. for Grade IX it was .72.[9]

Reliability. Studies have attempted to measure the reliability of this test in several ways. The alternate form reliability of The Lorge-Thorndike Intelligence Test shows a correlation of .776 between Form A and Form B of Level 4 and of .846 between Form A and Form B of Level 5. The split-half reliability coefficient of the test was found to be .928 for Level 4 and .905 for Level 5. The reliability coefficients arrived at for

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[8]Irving Lorge and Robert L. Thorndike, The Lorge-Thorndike Intelligence Tests Examiner's Manual (Boston: Houghton Mifflin Company, 1957), p. 14.

[9]Irving Lorge and Robert L. Thorndike, The Lorge-Thorndike Intelligence Tests Technical Manual (Boston: Houghton Mifflin Company, 1962), p. 21.

Levels 4AN and 5AN as a result of a standard error of measurement in points of I.Q. at selected raw score levels for 1419 and 834 cases was found to be .92 and .90 respectively.[10]

VI. TEST ADMINISTRATION AND SCORING

The two tests were administered by the homeroom teachers in each school under the supervision of the researcher. The students thus wrote the tests in the schools they attended.

All of the teachers involved were briefed prior to the administration of the tests on the procedures to be followed. In addition, detailed instructions for administering the tests, as given by the publishers, were followed to ensure uniformity of procedures. The testing schedule was arranged to allow for a time lapse or break of approximately one-half hour between the administration of the intelligence test and the reading test. This was done to avoid hampering student performance because of fatigue. The time required for writing the tests was twenty-seven minutes for the intelligence test and forty minutes for the reading test. Each student wrote the two tests in the morning or afternoon of the same day. The tests were given in the same sequence to all students as shown in the schedule in Appendix G.

Since the students wrote the tests in their regular classrooms, the number writing the tests in any one group varied from a minimum of 7 to a maximum of 28.

In converting the scores on The Lorge-Thorndike Intelligence Test,

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[10] Ibid., pp. 8-11.

a so-called "deviation I.Q." as supplied by the authors was used. These I.Q.'s have a mean of 100 and a standard deviation of 16. I.B.M. form ITS 1000 B answer sheets were used in the study. A "rights" key as supplied by the test publishers was used in hand-scoring the tests.

The answer sheets used with the Cooperative English Test, Reading Comprehension were I.B.M. 805 answer sheets. These were also hand-scored by the researcher using a "rights" key supplied by the test publishers. The dependent variables obtained from the reading test were based on converted scores on each sub-test.

The analysis of data as discussed below was carried out using the I.B.M. 1620 computer at Memorial University of Newfoundland.

VII. ORGANIZATION OF DATA

The data obtained from the standardized tests and the questionnaire were punched on I.B.M. cards. An example showing the method of tabulating this data is given in Table III. An I.B.M. card containing pertinent information was compiled for each student. For identification purposes, each school was assigned a number from one to six, and each student was assigned a number from one to 624. Each computer card recorded the grade and sex of each student, as well as his school and assigned number. Also on each card was a record of converted reading scores for vocabulary and total reading, percentile scores showing a student's position relative to both the local and the test percentiles, the I.Q. score of each student as well as his over-all average mark as recorded on his final grade report.

Chapter four of this study contains a descriptive, as well as a statistical, analysis of the data. The information contained in this

TABLE III

SAMPLE OF DATA TABULATION FROM TESTS AND QUESTIONNAIRE

Grade	Sex	School	Converted Scores		Percentile Scores		I.Q.	Student No.	Average Mark on All Subjects %
			Vocab-ulary	Total Reading	Test Percentiles	Local Percentiles			
IX	0	1	137	146	43.3	57.6	111	001	89
X	1	4	152	148	62.7	83.0	110	228	56
XI	1	6	143	136	26.1	34.0	100	531	53

Note: Reading scores are given in converted score units

section of the report gives a brief description of the type of analyses used in testing the hypotheses.

Three types of statistical analyses were used in the study, these being analysis of covariance, correlation coefficients and one-way analysis of variance with repeated measures.

Pearson-Product Moment correlation coefficients were calculated between each measure of reading achievement (reading Vocabulary and Total Reading) and each predictor variable (intelligence and academic success).

The correlation coefficients were tested for significance at the .05 level. The correlation between reading achievement and academic success was carried out with intelligence controlled.

An analysis of covariance was performed to determine whether there existed any statistically significant difference between the performance of males and females on each section of the reading test. This information was obtained for each of the three grades involved in the study, with intelligence controlled.

A one-way analysis of variance with repeated measures was performed to determine whether the students involved in the study were reading as well as they might reasonably be expected to read. The reading percentile scores given by the test authors were used to represent the level a student might be expected to read. The researcher tabulated local percentiles based on the scores obtained by the students writing the test. The analysis of variance was performed to determine whether there existed any significant difference between where the students were actually reading and where they were capable of reading. Since a student's reading expectancy level is determined to some degree by his intellectual capabilities, it was necessary to control for intelligence in conducting this test also.

No statistical analyses as such were conducted to determine how the reading ability of the students in this study compared with that of their American counterparts used in the norming population on the reading test used. Mean vocabulary and total reading scores as well as standard deviations were calculated, however, for each grade and sex. This was done to determine how many points above or below the mean the students in this study scored, as well as the amount of spread involved, as compared to the norming population.

CHAPTER IV

FINDINGS OF THE STUDY

The purpose of this chapter is to report the findings resulting from the administration of the tests and questionnaire. It contains a descriptive, as well as a statistical analysis of the variables under study. The chapter is divided into two parts. The first part contains a discussion of each of the several variables employed in the study. Included in this is a classification of students on the basis of intelligence, a comparison of students' scores on the reading test with those of students comprising the norming population, as well as a distribution of the total reading scores by grade and sex according to the frequency with which students read at various frequency bands (Table IV). The second part of this chapter contains a descriptive, as well as a statistical analysis of the findings obtained from the testing of each hypothesis.

I. INTELLIGENCE

Table IV contains a classification of students based on the non-verbal section of The Lorge-Thorndike Intelligence Test for levels four and five. The students are classified by grade and sex. The classification has been arranged to show how the scores of the males in this study compared with those of the females and how the I.Q. scores of the students compared with those of the American students comprising the norming population.

Several interesting observations can be made from the data presented

TABLE IV

STUDENTS CLASSIFIED BY INTELLIGENCE, LTIT NON-VERBAL LEVELS FOUR A AND FIVE A

Class Interval I.Q.'s	Grade IX						Grade X						Grade XI						Normal Distribution
	M		F		M and F		M		F		M and F		M		F		M and F		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	%
130 & over	2	1.6	0	0	2	.7	1	1.0	2	2.0	3	1.5	0	0	2	2.2	2	1.3	3.0
120-129	7	5.6	2	1.3	9	3.3	6	6.1	6	5.9	12	6.0	3	5.2	1	1.1	4	2.7	7.6
110-119	17	13.7	11	7.3	28	10.2	6	6.1	13	12.7	19	9.5	12	20.7	9	9.9	21	14.1	16.0
100-109	28	22.6	37	24.5	65	23.6	33	33.7	19	18.6	52	26.0	17	29.3	20	22.0	37	24.8	23.4
90-99	37	29.8	49	32.4	86	31.3	30	30.6	27	26.5	57	28.5	19	32.8	40	43.9	59	39.6	23.4
80-89	25	20.1	35	23.2	60	21.8	14	14.3	21	20.6	35	17.5	5	8.6	9	9.9	14	9.8	16.0
70-79	7	5.6	14	9.3	21	7.6	5	5.1	10	9.8	15	7.5	1	1.7	7	7.7	8	5.4	7.6
Below 69	1	1.0	3	2.0	4	1.5	3	3.1	4	3.9	7	3.5	1	1.7	3	3.3	4	2.7	3.0
Total	124	100	151	100	275	100	98	100	102	100	200	100	58	100	91	100	149	100	100
Median	97		94		96		99		96		97		101		96		98		100
Mean	99		94		96		99		96		97		101		97		98		100
S.D.	14		12		13		13		15		14		12		13		13		16

in the table.

1. The mean I.Q. score of males was in all three grades above that of females. In Grade IX the mean I.Q. score of males was five points above those of the females, while in Grades X and XI the differences were three points and four points respectively. The median I.Q. scores of males also more closely approximated the norming population than did those of females. This is an interesting and somewhat unexpected finding since in most studies the females tend to have an edge over males in points of I.Q. Pollard, reporting the findings of a study of sixth grade students in rural Newfoundland, found that both the mean and median I.Q. scores of males were six points below those of the females.[1]

2. The mean I.Q. scores of the students in this study were in all cases except one below those of the norming population. Only the Grade XI males had a higher mean score. While the scores were lower on the whole, the mean scores of males did, however, compare favourably with the norm for the intelligence test used; while those of females were six, four and three points below the norm for Grades IX, X and XI respectively.

3. The students in Grade XI had a mean I.Q. score one point higher than that of the Grade X students and two points higher than that of Grade IX students. The higher I.Q. scores of Grade XI students may be accounted for in that only a select group of students remain in school to reach Grade XI, these being those in many cases with greater intellectual abilities. When considered as groups, the mean I.Q. score of each grade compared

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[1]Hector A. Pollard, "Socio Economic Versus Educational Inputs as Related to Grade VI Reading Achievement in Rural Newfoundland" (unpublished Master's thesis, Memorial University of Newfoundland, 1970), p. 109.

favourably with the norming population on the intelligence test used.[2] The comparisons were somewhat more encouraging than those reported by Pollard.

II. READING ACHIEVEMENT

The vocabulary and total reading scores of the students in this study were, as was the case with the I.Q. scores, below those of the norms group for the test used. On the average the Grade IX and X students scored four points below the norms group on both the vocabulary and total reading sections of the reading test. The mean scores for the Grade XI students were approximately two points below the norms group on vocabulary and one point below on total reading. The mean reading scores of the Grade XI students were, then, closer to the mean for the norming population than were the scores of the Grade IX and X students. Table V contains a comparison of the mean reading scores for the students in this study as compared with the norm for the reading test used. It can be seen from the table that the mean scores for females are in almost every case above those for males. A more thorough discussion of the differences in reading ability between the sexes follows in the analysis of hypotheses two and three.

Tables VI, VII and VIII reveal the distribution of the total reading scores for each grade involved in the study.

III. HYPOTHESES TESTING

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[2]The norming population comprised 136,000 students in 44 communities covering 22 states. The population was stratified according to socio-economic criteria. See Irving Lorge and Robert L. Thorndike, The LTIT, Technical Manual, 1954, pp. 5 and 24.

TABLE V

CONVERTED READING SCORE MEANS AND STANDARD DEVIATIONS BY GRADE AND SEX

Grade	Test	Male				Female				Both Sexes			
		For Norms Group		For Study		For Norms Group		For Study		For Norms Group		For Study	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
IX	Vocabulary	144.4	9.8	140.8	7.1	145.2	9.9	140.5	7.7	144.8	9.9	140.6	7.4
	Total Reading	144.4	9.1	140.5	7.4	145.5	9.2	142.6	7.7	145.0	9.2	141.6	7.6
X	Vocabulary	147.1	10.2	143.1	7.2	147.3	10.5	142.1	9.1	147.2	10.4	142.6	8.2
	Total Reading	147.1	9.7	143.4	7.1	147.8	9.8	144.8	6.9	147.4	9.8	144.1	7.0
XI	Vocabulary	149.8	10.8	147.5	8.8	150.1	10.9	149.2	9.4	149.9	10.8	148.6	9.2
	Total Reading	149.9	10.1	148.1	8.2	150.5	10.1	149.3	8.4	150.2	10.1	148.9	8.3

TABLE VI

FREQUENCIES, CUMULATIVE FREQUENCIES AND CUMULATIVE PERCENTAGE FREQUENCIES FOR STUDENTS READING AT VARIOUS READING LEVELS, TOTAL READING GRADE IX

Class Interval	f	cf	cpf
164-165	2	275	100.0
162-163	2	273	99.0
160-161	3	271	98.0
158-159	4	268	96.7
156-157	3	264	95.5
154-155	3	261	94.4
152-153	10	258	92.0
150-151	14	248	87.6
148-149	12	234	82.9
146-147	13	222	78.4
144-145	36	209	69.5
142-143	29	173	57.6
140-141	31	144	46.7
138-139	35	113	34.7
136-137	23	78	24.2
134-135	21	55	16.2
132-133	11	34	10.4
130-131	11	23	6.4
128-129	7	12	3.1
126-127	3	5	1.3
124-125	1	2	1.0
122-123	1	1	0.5

TABLE VII

FREQUENCIES, CUMULATIVE FREQUENCIES AND CUMULATIVE PERCENTAGE FREQUENCIES FOR STUDENTS READING AT VARIOUS READING LEVELS, TOTAL READING GRADE X

Class Interval	f	cf	cpf
166-167	1	200	100.0
164-165	0	199	99.0
162-163	2	199	99.0
160-161	5	197	97.3
158-159	3	192	95.3
156-157	3	189	93.8
154-155	6	186	91.5
152-153	9	180	87.8
150-151	10	171	83.0
148-149	17	161	76.0
146-147	15	144	68.0
144-145	32	129	56.5
142-143	22	97	43.0
140-141	14	75	34.0
138-139	34	61	22.0
136-137	6	27	12.0
134-135	12	21	7.5
132-133	6	9	3.0
130-131	2	3	1.0
128-129	1	1	0.4

TABLE VIII

FREQUENCIES, CUMULATIVE FREQUENCIES AND CUMULATIVE PERCENTAGE FREQUENCIES FOR STUDENTS READING AT VARIOUS READING LEVELS, TOTAL READING GRADE XI

Class Interval	f	cf	cpf
172-173	1	149	100.0
170-171	2	148	99.0
168-169	1	146	97.7
166-167	2	145	96.6
164-165	3	143	94.9
162-163	3	140	92.9
160-161	6	137	89.9
158-159	8	131	85.2
156-157	5	123	80.9
154-155	9	118	76.1
152-153	11	109	69.5
150-151	8	98	63.1
148-149	14	90	55.7
146-147	12	76	46.9
144-145	24	64	34.9
142-143	16	40	21.5
140-141	12	24	12.1
138-139	4	12	6.7
136-137	3	8	4.4
134-135	2	5	2.7
132-133	2	3	1.0
130-131	1	1	0.5

This section of the chapter contains a descriptive, as well as a statistical analysis of the hypotheses of the study as outlined in Chapters II and III. The .05 level of significance will be accepted throughout the study in the hypotheses testing. However, where hypotheses are significant at or below levels of .01 and .001, indication of this will be contained in the tables. Where applicable the hypotheses will be tested with intelligence controlled. This will insure that any differences found are genuine and that they are not caused by the fact that any student is more or less intelligent than another.

Intelligence and Reading Achievement

The size of any correlation coefficient between intelligence and reading achievement will be affected depending on whether the intelligence test is verbal or non-verbal in nature. An explanation of the reason why this is so was given in the section dealing with intelligence and reading achievement in Chapter II of this report. Since the intelligence test employed in this study is a non-verbal test, it eliminates the possibility that the correlation will be affected by the amount of reading required of the student. A non-verbal intelligence test also insures that no student's I.Q. score is lowered because of his inability to read the materials. Thus, while correlations between non-verbal intelligence tests and reading tests tend to be lower than those between verbal intelligence tests and reading tests, the correlation perhaps gives a more accurate measure of the actual correlation between intelligence and reading ability.

Hypothesis one predicted that a non-significant positive relationship would be found between intelligence and reading ability as measured by Vocabulary and Total Reading. The Pearson Product Moment correlation

coefficient was employed to test this hypothesis. The correlations for vocabulary and total reading by grade and sex are given in Table IX. In all cases the correlations are statistically significant and the hypothesis as stated is thus rejected. In Grade IX the total reading scores of both males and females indicate a higher correlation than did the vocabulary scores. In Grade X the total reading scores of males correlate higher, whereas for females the vocabulary scores show the higher correlation. In Grade XI the reverse is true. Females in Grade XI, it should be pointed out, recorded the highest correlation of any grade or sex when intelligence was correlated with both sections of the reading test. When considered by grades, the Total Reading scores showed a higher correlation with intelligence than did Vocabulary scores in Grade IX. In Grades X and XI, however, there exists very little difference regardless of whether intelligence is correlated with the Vocabulary or Total Reading sections of the reading test.

The correlation coefficients were lowest in Grade X on both sections of the reading test, and highest in Grade XI. A difference of fifteen points and sixteen points exists between the lowest and highest correlations on Vocabulary and Total Reading respectively.

Sex and Reading Achievement

As previously noted in Chapter II, the majority of studies investigating the relationship between sex and reading achievement have shown that a person's ability to read is affected by the sex of the person. Studies have also shown that in the majority of cases females have been found to be better readers than males of the same age, grade and intelligence.

The present educational setup in Newfoundland makes no allowances

TABLE IX

CORRELATION BETWEEN INTELLIGENCE AND TOTAL READING ACHIEVEMENT BY GRADE AND SEX

Grade	Sex	N	I.Q. and Total Reading r	Level of Significance	I.Q. and Vocabulary r	Level of Significance
	M	124	.53	.001	.38	.001
IX	F	151	.45	.001	.43	.001
	M and F	275	.45	.001	.40	.001
	M	98	.48	.001	.28	.01
X	F	102	.28	.01	.42	.001
	M and F	200	.36	.001	.37	.001
	M	58	.41	.001	.44	.001
XI	F	91	.60	.001	.59	.001
	M and F	149	.52	.001	.52	.001

for the fact that reading ability is affected by sex. Consequently, both sexes are treated in the same manner in that they are expected to read the same textbooks and anthologies and to gain equally from their reading. Regardless of sex, all students are expected to be able to perform equally academically; and in addition to this, no consideration is given, except for possible isolated cases, to helping students improve their reading ability.

It was the intention of this study to determine whether there was any significant difference between the reading ability of males as compared to females in the secondary schools on the Burin Peninsula of Newfoundland.

The null hypothesis was employed for hypotheses two and three. The null hypothesis predicted that no significant difference would be found between the vocabulary scores and total reading scores of males and females. It was possible in testing these hypotheses that the mean I.Q. score of one sex might be found to be higher than that of the other. This was actually found to be the case. Under such conditions, the more intelligent students would be expected to be better readers than the less intelligent. The study sought to determine whether any one sex was reading better than the other according to the potential of each. In testing hypotheses two and three it was, then, necessary to control for intelligence. In so doing, any differences in mean intelligence between the sexes was adjusted.

An analysis of covariance was employed to test hypotheses two and three. The data obtained is set out in Table X. From the table it can be seen that in all cases, except the Vocabulary scores in Grades IX and XI, there is a significant difference in reading ability between the sexes.

The I.Q. scores as given in Table IV indicated that the mean scores were higher for males than for females. The Vocabulary and Total Reading

TABLE X

DIFFERENCE BETWEEN MALE AND FEMALE VOCABULARY AND TOTAL READING SCORES BY GRADE THROUGH AN ANALYSIS OF COVARIANCE WITH INTELLIGENCE CONTROLLED

Grade	Reading Score	Adjusted f-ratio	Level of Significance
IX	Vocabulary	.982	N.S.*
	Total Reading	.184	.001
X	Vocabulary	.896	N.S.*
	Total Reading	.443	.05
XI	Vocabulary	.708	.01
	Total Reading	.538	.05

* N.S. — Not Significant

scores given in Table V indicated that the mean reading test scores were higher for females than for males. In testing the hypotheses, therefore, the Vocabulary and Total Reading scores of males were adjusted downward. This indicated that where there is a significant difference in reading ability between the sexes (Table X), this difference is in favour of the female sex. In other words, females are significantly better readers than males as shown in the Total Reading scores in Grades IX, X and XI and in the Vocabulary scores in Grade XI on The Cooperative English Test, Reading Comprehension.

Hypothesis two (null hypothesis) which predicted no significant difference between the Vocabulary scores for males and females is accepted for Grades IX and X but is rejected for Grade XI.

Hypothesis three (null hypothesis) which predicted no significant

difference between the Total Reading scores for males and females is rejected for Grades IX, X and XI.

Reading Achievement and Academic Success

Success in school is determined by a combination of many factors, not the least of which is the student's level of reading proficiency. A student experiencing problems in reading will most certainly be hampered in his over-all performance in school. Some concern has been expressed at the secondary school level in Newfoundland over the possibility that the failure of some students may be influenced by the fact that they are experiencing problems in reading the materials. Students who fail to achieve up to expectations or intellectual ability are frequently classed as being disinterested, poorly motivated or victims of social and cultural deprivation. It is conceivable that the existing educational setup is to some degree responsible for the failure of some students in that it fails to teach them to read satisfactorily. The lack of both interest and motivation may be caused by an inability to read and interpret the reading materials.

It was the intention of this study to determine whether there exists a significant relationship between a student's ability to read and his over-all success in school. In an attempt to do this, student percentile scores on the reading test were classified (Table XI) and a comparison was made between each classification and the mean of the over-all average school grades of the students falling into each classification. From the table it can be seen that in most cases the better readers had higher average marks in their school examinations. This would suggest the existence of a relationship between reading ability and school success. The

TABLE XI

NUMBER AND PERCENTAGE OF STUDENTS READING AT VARIOUS PERCENTILE BANDS WITH GRADE AVERAGES*

Grade	Sex	Percentile Band	N	Percentage	Average Mark %
IX	M	0-20	37	30	51
		21-50	50	40	57
		51-80	33	27	61
		81-100	4	3	76
	F	0-20	38	25	48
		21-50	63	42	56
		51-80	36	24	62
		81-100	14	9	70
	M and F	0-20	75	27	50
		21-50	113	41	57
		51-80	69	26	62
		81-100	18	6	73
X	M	0-20	30	31	49
		21-50	44	45	58
		51-80	20	20	58
		81-100	4	4	55
	F	0-20	29	28	53
		21-50	47	46	57
		51-80	20	20	64
		81-100	6	6	74
	M and F	0-20	59	29	51
		21-50	91	46	58
		51-80	40	20	63
		81-100	10	5	65
XI	M	0-20	12	21	48
		21-50	18	31	50
		51-80	20	35	54
		81-100	8	13	53
	F	0-20	14	15	43
		21-50	29	32	52
		51-80	33	36	59
		81-100	15	17	70
	M and F	0-20	26	18	45
		21-50	47	32	52
		51-80	53	35	57
		81-100	33	15	65

*Average marks were computed by totalling each student's final marks in all school subjects and by then dividing the total by the number of subjects taken.

study then sought to determine whether indeed a significant relationship did exist. In this regard the null hypothesis employed for hypothesis four stated that there was no significant correlation between the two variables.

The Pearson Product Moment correlation coefficients between reading achievement and academic success are given in Table XII. As might be expected from the evidence given in Table XI, Table XII indicates the existence of a significant correlation between the two variables, thus necessitating the rejection of the null hypothesis for hypothesis four. It has, therefore, been shown that those students who were most successful in their final school examinations were better readers than were the students who were less successful. It can be concluded, then, that the better a student is able to read, the greater are his chances of success in school. Conversely, the chances of success are lessened by the existence of a reading problem. A finding such as this clearly points to the importance of directing more attention towards improving reading skills at the secondary school level.

TABLE XII

CORRELATION BETWEEN TOTAL READING ACHIEVEMENT AND ACADEMIC SUCCESS

Grade	Correlation r	t-values	Level of Significance*
IX	.43	7.80	.001
X	.35	5.20	.001
XI	.42	5.61	.001

*Significance at the .05 level requires a t of 1.96 or greater when the degrees of freedom is more than 120; a t of 2.57 is required for significance at the .01 level for degrees of freedom greater than 120. See George A. Ferguson, Statistical Analysis in Psychology and Education (New York: McGraw-Hill, 1966), p. 187.

Correlations were also carried out to determine the relationship between intelligence and academic success. Table XIII reveals the results. The correlation coefficients between reading achievement and academic success were in all three grades higher than those between intelligence and academic success. This shows that reading ability is a better predictor of success in school than is intelligence.

TABLE XIII

CORRELATION BETWEEN INTELLIGENCE AND ACADEMIC SUCCESS

Grade	Correlation r	Level of Significance
IX	.36	.001
X	.31	.001
XI	.37	.001

Difference Between Actual and Expected Reading Level

A major purpose of this study centered around an attempt to determine whether the students involved in the study were reading as well as might reasonably be expected. As was noted earlier, minimal attention has been devoted to the improvement of reading skills among secondary school students in the province of Newfoundland. This study sought to determine whether indeed there was just cause to assume that secondary school students are reading up to their potential. Evidence of the existence of a significant difference between the actual reading level and the potential reading level would identify an error in the assumption that no further attention need be given to providing reading instruction at the secondary school

level. It would also prove fallacious the assumption that the elementary school furnishes the student with sufficient mastery of the skills involved in the reading process.

It has been shown in hypothesis four that the better a student is able to read, the greater are his chances of success in school. Contentment should be felt, therefore, with nothing less than attempting to provide students, to the limit of their capabilities, with a mastery of the skills involved in the reading process. This study sought to determine whether indeed the students involved were reading as well as they possibly could.

Reading percentile scores for The Cooperative English Test, Reading Comprehension were tabulated for each student. In addition, local percentiles were computed based on the students' converted scores on the reading test as shown in Tables XIV, XV and XVI. The procedures followed in constructing the local percentiles are presented in the Technical Manual accompanying the reading test.[3] Any given converted reading score which corresponded to a higher percentile score on the local percentiles than on the test percentiles would indicate that the students involved in the study were not reading as well as those comprising the norming population.

The percentile scores as given in the reading test were used to represent the level at which the students in this study could be expected to read. The local percentiles as tabulated were used to represent the level at which the students were actually reading. The study, then, sought to determine whether there existed a significant difference between the two variables.

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[3]Cooperative English Test, Reading Comprehension, Technical Manual, 1960, pp. 24-26.

TABLE XIV

CONVERTED TOTAL READING SCORES WITH CORRESPONDING TEST AND LOCAL PERCENTILES, GRADE IX

Converted Scores	Test Percentiles	Local Percentiles
164-165	97	99
162-163	96	99
160-161	94	98
158-159	91	96
156-157	87	95
154-155	83	94
152-153	78	92
150-151	72	87
148-149	66	82
146-147	59	78
144-145	51	69
142-143	43	58
140-141	34	47
138-139	26	35
136-137	18	16
134-135	12	13
132-133	8	10
130-131	4	6
128-129	2	3

TABLE XV

CONVERTED TOTAL READING SCORES WITH CORRESPONDING TEST AND LOCAL PERCENTILES, GRADE X

Converted Scores	Test Percentiles	Local Percentiles
164-165	95	99
162-163	92	99
160-161	89	97
158-159	85	95
156-157	80	93
154-155	74	90
152-153	69	88
150-151	63	83
148-149	56	76
146-147	48	68
144-145	40	56
142-143	33	53
140-141	26	34
138-139	20	22
136-137	14	12
134-135	9	10
132-133	5	3
130-131	3	1

TABLE XVI

CONVERTED TOTAL READING SCORES WITH CORRESPONDING TEST AND LOCAL PERCENTILES, GRADE XI

Converted Scores	Test Percentiles	Local Percentiles
172-173	99	99
170-171	98	98
168-169	96	97
166-167	94	96
164-165	90	94
162-163	86	92
160-161	82	89
158-159	77	85
156-157	71	80
154-155	65	76
152-153	58	69
150-151	51	63
148-149	45	55
146-147	38	47
144-145	31	34
142-143	24	21
140-141	18	12
138-139	13	6
136-137	9	4
134-135	6	3
132-133	3	2
130-131	2	1

It has been shown that there exists a significant correlation between intelligence and reading ability. It was, therefore, necessary to control for intelligence in determining whether students were reading up to their potential.

The null hypothesis for hypothesis five predicted no significant difference between actual reading ability and potential reading ability. A one-way analysis of variance with repeated measures was employed in testing this hypothesis. In order to determine whether students of varying intelligence levels were reading up to potential, the students were classified into three groups according to whether their intelligence scores on The Lorge-Thorndike Intelligence Test were greater than one hundred and ten, between ninety and one hundred and ten, and below ninety; in other words above average, average and below average. The analysis of variance was conducted for each group by grade and sex (Table XVII). The table clearly indicates the existence of a significant difference between the two variables excepting only students in Grade XI with I.Q. less than ninety. It was concluded, then, that generally the difference between the two variables was not influenced by I.Q. This having been established, analyses of variance were conducted on the basis of grade and sex (Tables XVIII and XIX). The tables indicate that there exists a significant difference between the actual and possible reading level of the students involved in the study. In other words, the students were not reading as well as they could. The null hypothesis for hypothesis five was thus rejected.

IV. READING EXPECTANCY LEVEL

It has thus been shown that, as a group, the students involved in this study were not reading up to potential. This is a significant factor

TABLE XVII

DIFFERENCE BETWEEN ACTUAL AND EXPECTED READING LEVEL BY SEX IN EACH GRADE AT VARIOUS I.Q. LEVELS

Grade	Sex	N	I.Q. Level	Mean Percentile Score For Test Used	Mean Percentile Score For Study	f-ratio	Level of Significance
IX	M	22	>110	55.1	68.8	78.8	.001
		69	90-110	34.0	44.7	223.3	.001
		33	<90	28.3	36.8	54.2	.001
	F	11	>110	55.5	70.6	180.2	.001
		89	90-110	44.9	56.3	492.4	.001
		51	<90	26.0	34.1	96.1	.001
X	M	14	>110	49.1	59.6	28.7	.001
		63	90-110	37.1	48.2	116.7	.001
		21	<90	29.0	36.9	17.9	.001
	F	18	>110	50.6	62.5	37.7	.001
		48	90-110	39.0	49.5	70.2	.001
		36	<90	30.7	39.2	39.5	.001
XI	M	12	>110	55.8	61.0	9.7	.01
		39	90-110	40.8	45.2	17.6	.001
		7	<90	32.4	36.1	1.7	N.S.
	F	11	>110	72.7	78.8	17.3	.001
		61	90-110	48. 2	54.6	74.1	.001
		19	<90	26.8	27.1	0.04	N.S.

TABLE XVIII

DIFFERENCE BETWEEN ACTUAL AND EXPECTED READING LEVEL BY SEX IN EACH GRADE

Grade	Sex	N	Mean Percentile Score for Test Used	Mean Percentile Score for Study	f-ratio	Level of Significance
IX	M	124	36.3	46.9	327.4	.001
	F	151	39.3	49.8	547.6	.001
X	M	98	37.1	47.4	157.6	.001
	F	102	38.1	48.1	145.6	.001
XI	M	58	42.9	47.4	28.6	.001
	F	91	46.7	51.8	57.4	.001

TABLE XIX

DIFFERENCE BETWEEN ACTUAL AND EXPECTED READING LEVEL BY GRADE

Grade	N	Mean Percentile Score for Test Used	Mean Percentile Score for Study	f-ratio	Level of Significance
IX	275	37.9	48.5	864.0	.001
X	200	37.6	47.8	303.0	.001
XI	149	45.2	50.1	85.3	.001

in itself in that the school system concerned has been made aware of the discrepancy between the actual and potential reading level of its student body as a whole. It also clearly points to the need to include reading instruction at the secondary school level. This finding is not particularly significant to the classroom teacher, however, as he still has no real means of knowing whether students are in need of help in the form of a remedial reading program or whether they need textbooks with simpler vocabularies, nor is he likely to know how to find out. In an attempt to make the study more relevant for the classroom teacher in identifying individual students with reading problems, regression equation graphs have been constructed (Figures 1, 2 and 3). With the aid of this instrument, it is possible for a teacher, knowing the I.Q. and actual reading level of a student, to determine where that student is reading in relation to his reading expectancy level (REL). Once a student's I.Q. and actual reading level have been established, one can determine where the student stands in relation to his REL by plotting his actual reading level on the graph. The line on the graph marked REL (Reading Expectancy Level) represents the level at which a student could be expected to read according to his intellectual ability. The graph also indicates the mean reading score in converted score units for each grade as well as a score which would constitute a reading score one and two standard deviations above and below the mean.[4]

It has been pointed out previously in the study that a student's

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[4]The regression equation graph contained in the study is directly applicable in determining reading expectancy level only in cases where the same I.Q. and reading test instruments as those used in the study are employed. Should different tests be used then a new regression equation graph will have to be constructed.

FIGURE I

GRAPHICAL REPRESENTATION OF READING EXPECTANCY LEVEL (REL) FOR GRADE IX

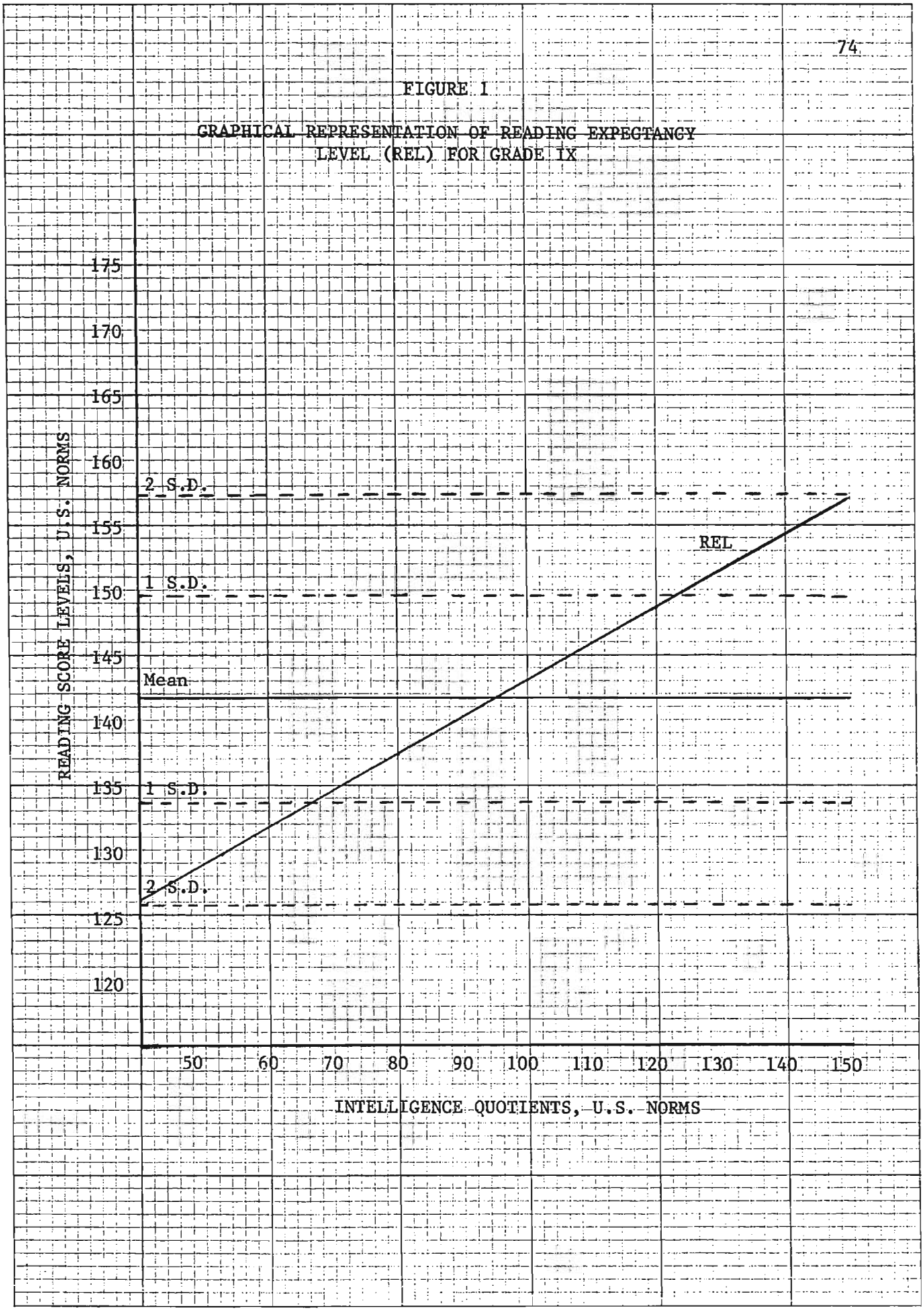


FIGURE 2

GRAPHICAL REPRESENTATION OF READING EXPECTANCY LEVEL (REL) FOR GRADE X

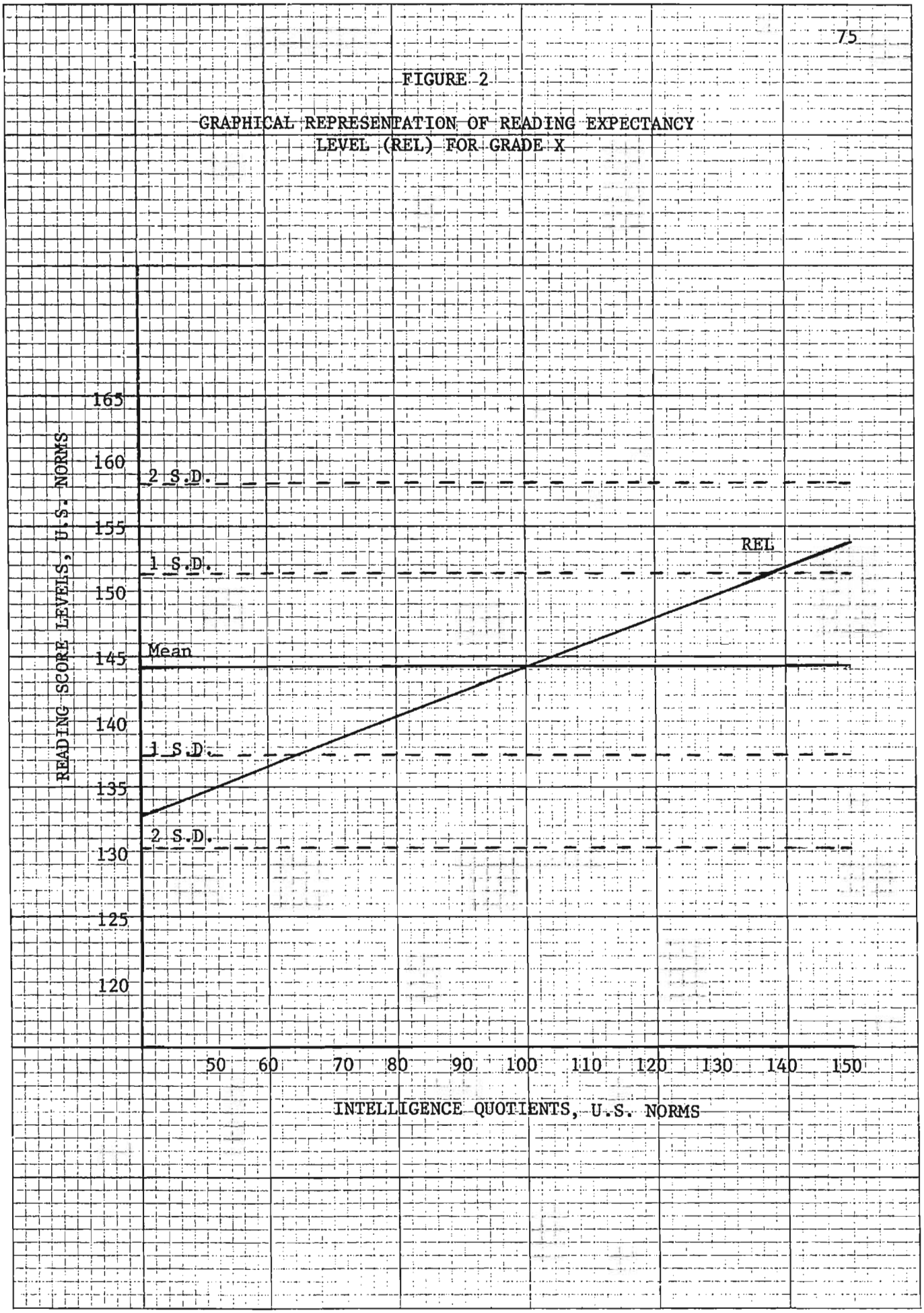
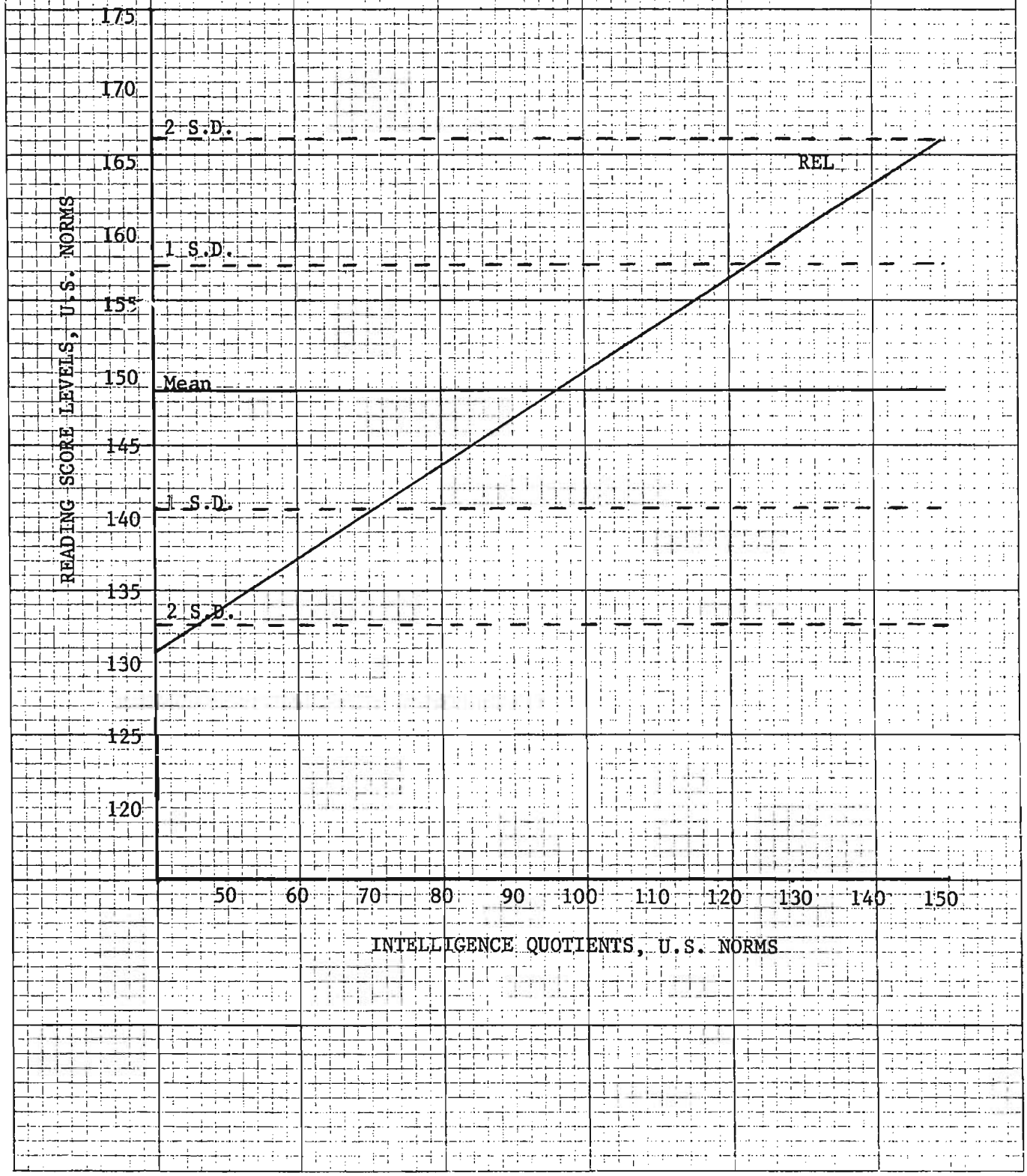


FIGURE 3

GRAPHICAL REPRESENTATION OF READING EXPECTANCY LEVEL (REL) FOR GRADE XI



actual reading level score is of minimal use by itself. For example, if a student records a low score on a reading ability test, this may or may not mean that he is reading below his reading expectancy level. The I.Q. and age of the student must be considered before a decision can be made. The regression equation graph is an instrument which may be applied to determine whether a student is reading as well as his capabilities allow.

It is possible to illustrate this point by taking an example involving two students. Student A and student B, both in Grade IX, recorded identical reading scores of 144. Student A was shown to have an I.Q. of 97 and student B an I.Q. of 124. The identical reading scores indicate that both students have similar actual reading abilities. By plotting their position on the graph for their grade, however, a striking difference becomes evident. The actual reading ability of student A is slightly above that which would normally be expected. Student B, on the other hand, is reading well below the level at which he is capable of reading.

This illustration shows that while both students recorded identical reading scores the implications for each student are different. Student B requires help, possibly through a remedial reading program, whereas contentment may be felt with the reading ability of student A.

CHAPTER V

SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

I. SUMMARY OF STUDY

The Problem

The purpose of this study was to examine the hypothesized relationships between reading achievement, as measured by vocabulary and total reading comprehension, and selected variables for a select group of secondary school students.

The hypotheses examined the relationships between reading achievement and variables such as sex, intelligence, academic success and reading potential.

The Population

The population of the study totalled 735 grade nine, ten and eleven students under the jurisdiction of the Roman Catholic School Board for the Burin Peninsula. This involved the total secondary school population of that board. Complete information, however, was obtained on only 624 students.

Instrumentation

A measure of reading achievement was obtained through the use of The Cooperative English Test, Reading Comprehension. Converted scores and reading percentiles were used in the analysis.

Deviation I.Q. scores were obtained on the students through the administration of forms 4AN and 5AN of The Lorge-Thorndike Intelligence

Test. The scores obtained were measures of non-verbal intelligence.

Information on student academic success was obtained from the School Board in the case of the Grade IX and X students, and from the Provincial Department of Education for the Grade XI students.

The testing program was conducted from May eighth to May eleventh, 1972, by the researcher with the cooperation of the classroom teachers who served as invigilators.

The data obtained from the administration of the tests were recorded on coding sheets and later punched on I.B.M. cards. The various statistical analyses involved in the hypotheses testing were carried out primarily by the computer services of Memorial University of Newfoundland.

Main Findings

The main findings of the study may be summarized as follows:

1. The mean I.Q. scores of the students involved in this study were in all cases except one below the mean scores on the standardized I.Q. test used. In the case of the reading test scores, it was found that in all cases the mean scores for the students involved in this study were below those of the students comprising the norming population on the test used.

2. The male students involved in the study were found to be more intelligent than the females in all three grades. Females, on the other hand, were better readers than the males in all grades.

3. Both the male and female students in all grades were shown to be reading significantly below the level at which they were capable of reading.

4. A significant correlation was found to exist between reading

achievement and variables such as I.Q. and academic success. Those students who were shown to be the better readers were most successful in school.

5. Of the three grades included in this study, the scores of Grade XI students compared most favourably with the mean scores on both the I.Q. and reading tests used. That is, the I.Q. and reading test scores of the Grade XI students more closely approximated the norms for the tests than did those of the Grade IX and X students.

6. This study found that academic success was influenced more by reading ability than by intelligence. In other words, reading ability was a greater predictor of success in school than was intellectual ability.

II. IMPLICATIONS

The reading ability of the students involved in this study was found to be below that of the American students of comparative grade comprising the norming population on the Cooperative English Test, Reading Comprehension. The students involved in this study were, then inferior readers when compared to their counterparts in American schools. Theoretically, students of similar grade and I.Q. should read equally well regardless of geographical location. It is apparent that the students involved in this study were not reading up to their potential. This clearly indicates the need for more attention to be directed towards improving the quality of reading among the secondary school students in the area under study. There is also no reason to suspect that such a reading problem is unique to this area of Newfoundland, since there is no provincial reading program at the secondary level.

There may be several ways of approaching the problem of improving secondary school students' reading ability. The initial step has been

taken with the realization that a problem exists. Following this it must be recognized that the secondary school shares with the primary and elementary schools the responsibility for the teaching of reading. It should not be assumed that the primary and elementary schools provide students with sufficient mastery of the reading skills necessary to carry them through the remainder of their school years.

Once a commitment has been made to upgrade the quality of secondary school reading, it then becomes necessary to collect relevant information on the student body concerned. This includes records of each student's age, grade, actual reading ability and intellectual ability. Scores on any reading test will indicate which students are the superior or inferior readers in a specific class, grade or school. This gives indication of how well an individual is reading relative to his class, grade or school. By ascertaining the actual reading level, the I.Q., age and grade it becomes possible to determine how well an individual student is reading in relation to his potential.

The information needed to determine this was obtained for the students involved in this study. The graphs on Figures 1, 2 and 3 indicate the level at which students could reasonably be expected to read, given their grade, age and I.Q. As was explained in the previous chapter, by knowing a student's I.Q. and actual reading level it becomes possible from the graph for his grade to show where he is reading in relation to where he is capable of reading.

The actual reading level of each student may then be compared with his expected reading level, making it possible to categorize each student for instructional purposes. Students who are underachievers in reading in their grade can be classified and grouped according to whether or not they

are reading up to potential. The implications this has for instructional purposes becomes obvious. Students who are found to be underachievers in reading in their grade but who are reading up to potential may be given texts and reading materials appropriate to their reading level. Students who are underachievers in reading in their grade but who are not reading up to potential should be grouped separately from the previous group. The emphasis with this second group should be placed on increasing and improving their reading ability. Where a sufficient number of students fall into this category a remedial reading program is the most advisable approach to follow. When the students in this category have been identified, diagnostic reading tests may be used to indicate each student's specific area of weakness. Problems being experienced with reading may range from an inability to comprehend to dyslexia and weakness in word attack skills. A remedial reading program assesses specific difficulties experienced by each student. The students are then able to receive special enrichment instruction in reading on a small group basis according to individual needs.

It is conceivable that a teacher may be faced with a situation involving a student in Grade IX who is capable of reading at his grade level but who in actual fact is reading at a Grade V level because of problems being experienced in comprehension. The problem is one of helping the student progress to a Grade IX reading level. The task of the teacher can be lessened in this regard through the use of a remedial reading series of books and materials. Such series with controlled vocabularies have been especially designed for students with this problem to help them advance at a gradual, controlled pace. Various types of materials especially designed to overcome specific problems students experience with reading, are avail-

able and such materials can be of considerable help to the teacher.[1]

III. RECOMMENDATIONS

On the basis of the findings of this study the following recommendations are made:

1. It is felt that educational authorities at the provincial, board and school level undertake a thorough assessment of the reading status of secondary school students on a province wide basis. Where a reading problem is found to exist it is recommended that remedial reading programs be instituted at the secondary school level and that sufficient staff, funds and facilities be provided to meet the needs.

2. Primary and elementary school teachers should, therefore, evaluate their methods of teaching reading skills to determine whether any improvements can be brought about in the approach to teaching reading skills at those levels.

3. Curriculum planners in the schools should allocate specific time-table allotments in their school curricula whereby a conscious effort is made to rectify any problems students may be experiencing with their reading. Whether or not a school will need a remedial reading program will depend upon the magnitude of the reading problem. Brett, in her thesis, recommended that: "All high schools study the possibility of instituting a developmental reading program and that more attention be given to the teaching of reading skills."[2] This study supports this recommendation.

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[1] Such materials include tachistoscopes, reading flash cards, Continental Press reading stencils and controlled reading series such as Morgan Boy Mystery Series, Deep Sea Adventure Series.

[2] Brett, op. cit., p. 139.

4. Teachers of secondary school English should be primarily responsible for diagnosing reading abilities and problems. They should also be responsible for teaching basic reading skills pertaining to general reading ability. In addition, however, all teachers of subjects requiring reading should be teachers of reading to some degree. Teachers of social studies, mathematics and science should teach the reading skills unique to their subject areas. This would include the reading of maps, graphs and the vocabulary particular to the subject. Brett supports this argument when she notes that:

> Such skills as reading to detect relationships, reading between the lines, seeing implications, recognizing relationships between form and content, must be taught in the high schools by teachers of all subjects.[3]

5. All teachers of subjects requiring reading should study at least one university semester course in the teaching of secondary school reading. Such a course would benefit the teacher by enabling him to:

a) identify students with reading problems;

b) diagnose specific problems;

c) decide which students are reading up to potential in the particular subject area;

d) decide which approach to adopt to help overcome problems specific students may be experiencing;

e) be familiar with the proper procedures to follow in alleviating existing problems.

IV. SUGGESTIONS FOR FURTHER RESEARCH

This study has shown that the students involved in this study were

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[3]Brett, op. cit., p. 136.

not reading up to their potential. No attempt has been made, however, to determine whether the vocabularies of certain texts are suited to the grade levels in which they are used. It is conceivable that certain texts especially in social studies and the sciences may be written on a vocabulary level which is beyond the grade level for which they are used. In this regard, studies should be undertaken to ascertain whether certain texts and anthologies contain a vocabulary which is commensurate with the reading level expected of students in the grade in which it is used.

The degree to which one can generalize in any one piece of research is limited when the research is conducted in a specific geographical location. Consequently, studies of a nature similar to this one should be conducted in other geographical areas, both rural and urban in the province of Newfoundland. Such studies should attempt to determine whether the reading status of secondary school students in other areas is similar to those found to exist in this study. Similar findings would reinforce the need to direct more attention to this most valued human need, the ability to read.

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APPENDICES

APPENDIX A

LETTER REQUESTING RESEARCH STUDIES

P.O. Box 549

Telephone 279-2133

Marystown Regional High School

Marystown, Placentia Bay

Newfoundland

NOV 22 1971

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November 18, 1971

Dr. G. Murphy, Head
Dept. of Curriculum and Instruction
Faculty of Education
Memorial University of Newfoundland
St. John's, Newfoundland

Dear Dr. Murphy:

We, at this school, are very interested in having testing programs conducted with our students. As these testing programs are not available to us or we do not have the personnel to administer them, we have a number of proposals to make to you and to your graduate students.

(1) If your department or your graduate students are conducting any testing program that requires qualified people to administer and to mark, we would be delighted to accomodate them at their convenience.

(2) If your department or your graduate students are conducting a testing program that we can administer, we will gladly co-operate in administering them and in returning the papers for marking, etc..

(3) We will also gladly co-operate with you in any other type of research work you or your students are conducting.

(4) In return for our co-operation, we would want a copy of score, percentiles, etc., for our own school records, so that we can better understand our pupils' problems and maybe do a better job of guiding them in the right direction.

We also ask you to pass this proposal on to the other graduate departments as we would do the same for them.

Yours truly,

Wm. Patrick Walsh

WM. PATRICK WALSH
Principal

WPW/bc

APPENDIX B

LETTER TO THE SCHOOL BOARD SUPERINTENDENT

MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada

Department of Curriculum and Instruction

January 24, 1972

Mr. Albert Dober, Superintendent
Roman Catholic School Board for Burin Peninsula
P. O. Box 278
Burin, Newfoundland

Dear Sir:

We are three teachers who are working towards a Master of Education degree at Memorial University. Our field of specialization is English Language and Literature, Curriculum and Instruction at the secondary level. In our teaching experience we have considered the problem of reading at this level to be one of great concern. Consequently, we are attempting to write our theses on certain aspects of this problem.

We wonder if it would be possible for us to do some research on this area in your school district. Our research would consist of standardized tests administered to the students and questionnaires administered to the teachers, at no cost to your school board. Our data and conclusions will be made available to you and your staff as well as our recommendations which will be the products of discussion among you, your professional staff, our faculty advisors and ourselves.

If you are agreeable to our request, our findings will be of particular interest and use to your board because our population and sample will be drawn entirely from your school district.

Please inform us whether or not our proposal meets with your approval so that we may furnish you with more details relevant to the scope and depth of our research.

Thanking you for your consideration and trusting that your reply will be a favourable one, we remain,

Yours truly,

Horace Davis
Maureen McDonald
Brian Shortall

APPENDIX C

LETTER FROM SCHOOL BOARD SUPERINTENDENT

APPENDIX D

LETTER TO SCHOOL BOARD SUPERINTENDENT EXPLAINING NATURE OF STUDY

Telephone 891-1710
891-1711

Roman Catholic School Board

for the
Burin Peninsula
Burin, Newfoundland

January 31, 1972

Mr. Horace Davis
Department of Curriculum & Instruction
Memorial University
St. John's
Nfld.

Dear Sir:

In reply to your letter dated January 20, 1972, this Office will gladly co-operate in the survey you, Maureen McDonald and Brian Shortall plan to do.

When details of your research project are known, I will make arrangements with the particular Schools for you.

Sincerely yours,

A. J. DOBER,
DISTRICT SUPERINTENDENT

AJD/jw

MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada

epartment of Curriculum and Instruction

P. O. Box 14
Arts-Education Bldg.
February 19, 1972

Mr. Albert Dober
Superintendent
Burin Peninsula Roman Catholic School Board
Burin, Newfoundland

Dear Sir:

On behalf of Maureen MacDonald, Brian Shortall and myself, I would like to thank you for your board's willingness to cooperate with us in our research work.

As for myself, I would like to investigate the reading situation in Grades IX, X and XI. This would include looking at how well the students are reading in relation to their ability to read, how reading ability relates to academic success and other related factors. This information I hope to find by administering two standardized tests, one on intelligence and one on reading ability. In addition to the findings of my study, the results of the tests will be made available to the schools concerned.

It is tentatively proposed that I will be ready to do the testing in your schools around the middle of April or early May. Could you please indicate whether this meets with your approval. I would also be interested in knowing whether your board has, in the past, administered standardized I.Q. and reading tests at the secondary school level.

I am anxiously looking forward to working with your board, and hope that I am not being too demanding on your time.

Thank you.

Yours truly,

Horace Davis

APPENDIX E

QUESTIONNAIRE TO SCHOOL PRINCIPALS

MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada

Department of Curriculum and Instruction

P. O. Box 14
Arts-Education Bldg.
June 7th, 1972

Dear Principal,

I would like to express my sincere thanks to you and your staff for your cooperation in accommodating me during my recent visit to your school. The data on the I.Q. and reading tests are currently being tabulated and will be forwarded to your superintendent in the near future.

I regret having to bother you again but I wonder if it is possible for you to provide me with the final marks of the Grade IX and X students in your school. I am referring to the marks that are being recorded on their final grade reports for the present year. There is no need to write the name of each subject, i.e. geography, history, rather I just need the student's name and the mark in each subject or the overall average of each student, whichever is easier for you.

Example:

Jones, John 70 55 80 65 70 etc.
or
Jones, John Overall average 68%

This information is required in order to compare each child's reading ability with his overall success in school.

I realize this is a busy time for you and your staff and it is only because this information is essential for the successful completion of my work that I trouble you for it. Thank you.

Sincerely,

Horace Davis

P. S. The Curriculum Department at the University would be most grateful if you could provide Mr. Davis with the required information. The research being conducted is a part of the university's constant endeavour to improve the quality of education in our schools.

Thank you,

Dr. O. K. Crocker
Professor of Education

APPENDIX F

LETTER TO SCHOOL BOARD SUPERINTENDENT ACCOMPANYING TABULATED RESULTS OF TEST ADMINISTRATION

MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada

Department of Curriculum and Instruction

P. O. Box 14
Arts-Education Bldg.
June 12, 1972

Mr. Albert Dober
Superintendent
Burin Peninsula Roman Catholic School Board
Burin, Newfoundland

Dear Sir:

I would like to express my sincere thanks to you and your board for your cooperation in allowing me to do my research in your area.

Enclosed you will find the tabulated results of the tests which were administered in your schools. The results of the reading test are given in percentiles, for vocabulary and total reading. If a student is reading at the 50th percentile, this means that he is reading as well as or better than 50% of the people who took the test. The third column of figures on the enclosed sheet gives the I.Q. of each student.

While this information may be of some immediate value to your teachers, the data will be analyzed in detail in my thesis, a copy of which will be made available to you upon its completion.

The six principals involved have been advised that the data was to be sent to your office for distribution.

Thank you once again.

Sincerely,

Horace Davis

APPENDIX G

SCHEDULE OF TEST ADMINISTRATION

SCHEDULE OF TEST ADMINISTRATION

Day	Date	Time	Test	Community
Monday	May 8	9:00-10:00	LTIT	Marystown
Monday	May 8	11:00-12:00	CETRC	Marystown
Monday	May 8	1:00-2:00	LTIT	Burin
Monday	May 8	2:30-3:30	CETRC	Burin
Tuesday	May 9	9:00-10:00	LTIT	St. Lawrence
Tuesday	May 9	11:00-12:00	CETRC	St. Lawrence
Tuesday	May 9	1:00-2:00	LTIT	Lawn
Tuesday	May 9	2:30-3:30	CETRC	Lawn
Wednesday	May 10	9:00-10:00	LTIT	Lamaline
Wednesday	May 10	11:00-12:00	CETRC	Lamaline
Thursday	May 11	9:00-10:00	LTIT	Rushoon
Thursday	May 11	11:00-12:00	CETRC	Rushoon

Note: LTIT -- Lorge-Thorndike Intelligence Test

CETRC -- Cooperative English Test, Reading Comprehension

APPENDIX H

STUDENT ENROLMENT BY GRADE AND SCHOOL

STUDENT ENROLMENT BY GRADE AND SCHOOL

School	Grade	Enrolment	Number Tested
Lamaline Central High	IX	33	29
	X	37	33
	XI	20	20
Berney Memorial, Burin	IX	23	18
	X	22	15
	XI	15	12
Lawn Central High	XI	35	31
	X	29	25
	XI	19	18
Marystown Regional High	IX	97	89
	X	95	83
	XI	58	48
Rushoon Central High	IX	26	21
	X	14	7
	XI	10	9
Marian High, St. Lawrence	IX	102	87
	X	52	37
	XI	48	42
Total Enrolment	IX	316	275
	X	249	200
	XI	170	149
	TOTAL	735	624

APPENDIX I

REGRESSION EQUATION EMPLOYED TO CALCULATE READING EXPECTANCY LEVELS

REGRESSION EQUATION EMPLOYED TO CALCULATE READING EXPECTANCY LEVELS

$$\hat{Y} = AX + B$$

where:

$\hat{Y}$ = predicted reading score

X = actual I.Q. score

$A = r \frac{S_y}{S_x}$

$B = \bar{Y} - A\bar{X}$

r = correlation between I.Q. and reading scores

S_y = standard deviation of reading scores

S_x = standard deviation of I.Q. scores

$\bar{Y}$ = mean reading scores

$\bar{X}$ = mean I.Q. scores